INTERNATIONAL MARITIME ORGANIZATION

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SUB-COMMITTEE ON SAFETY OF NAVIGATION
44th session
Agenda item 14

NAV 44/14
4 September 1998
Original: ENGLISH

REPORT TO THE MARITIME SAFETY COMMITTEE

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LIST OF ANNEXES

1 GENERAL

1.1 The Sub-Committee on Safety of Navigation held its forty-fourth session from 20 to 24 July 1998 at the Headquarters of the Organization, under the chairmanship of Mr. K. Polderman (The Netherlands). The Vice-Chairman, Dr. V.I. Peresypkin (Russian Federation), was also present.

1.2 The session was attended by representatives of the following countries:

ARGENTINA
AUSTRALIA
BAHAMAS
BANGLADESH
BELGIUM
BRAZIL
BULGARIA
CANADA
CHILE
CHINA
COLOMBIA
CROATIA
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA
CYPRUS
DENMARK
ECUADOR
EGYPT
ESTONIA
FINLAND
FRANCE
GERMANY
GREECE
ICELAND
INDIA
INDONESIA
IRELAND
ISRAEL
ITALY
JAPAN
LIBERIA
MALAYSIA
MALTA
MARSHALL ISLANDS
MEXICO
NETHERLANDS
NORWAY
PANAMA
PERU
PHILIPPINES
POLAND
PORTUGAL
REPUBLIC OF KOREA
ROMANIA
RUSSIAN FEDERATION
SAUDI ARABIA
SINGAPORE
SOUTH AFRICA
SPAIN
SWEDEN
SYRIA ARAB REPUBLIC
THAILAND
TURKEY
UKRAINE
UNITED KINGDOM
UNITED STATES
URUGUAY
VENEZUELA

and of the following Associate Member of IMO:

HONG KONG, CHINA

1.3 The following United Nations, intergovernmental and non-governmental organizations were also represented:

WORLD METEOROLOGICAL ORGANIZATION (WMO)
INTERNATIONAL HYDROGRAPHIC ORGANIZATION (IHO)
COMMISSION OF THE EUROPEAN COMMUNITY (EC)
ARAB FEDERATION OF SHIPPING (AFS)

INTERNATIONAL MOBILE SATELLITE ORGANIZATION (Inmarsat)
INTERNATIONAL CHAMBER OF SHIPPING (ICS)
INTERNATIONAL SHIPPING FEDERATION (ISF)
INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)
INTERNATIONAL UNION OF MARINE INSURANCE (IUMI)
INTERNATIONAL CONFEDERATION OF FREE TRADE UNIONS (ICFTU)
INTERNATIONAL ASSOCIATION OF LIGHTHOUSE AUTHORITIES (IALA)
INTERNATIONAL RADIO-MARITIME COMMITTEE (CIRM)
INTERNATIONAL ASSOCIATION OF PORTS AND HARBOURS (IAPH)
THE BALTIC AND INTERNATIONAL MARITIME COUNCIL (BIMCO)
INTERNATIONAL ASSOCIATION OF CLASSIFICATION SOCIETIES (IACS)
OIL COMPANIES INTERNATIONAL MARINE FORUM (OCIMF)
INTERNATIONAL MARITIME PILOTS' ASSOCIATION (IMPA)
FRIENDS OF THE EARTH INTERNATIONAL (FOEI)
INTERNATIONAL ASSOCIATION OF DRILLING CONTRACTORS (IADC)
INTERNATIONAL ASSOCIATION OF INSTITUTES OF NAVIGATION (IAIN)
INTERNATIONAL FEDERATION OF SHIPMASTERS' ASSOCIATIONS (IFSMA)
INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKER OWNERS (INTERTANKO)
INTERNATIONAL GROUP OF P AND I ASSOCIATIONS (P AND I)
SOCIETY OF INTERNATIONAL GAS TANKER AND TERMINAL OPERATORS (SIGTTO)
INTERNATIONAL LIFEBOAT FEDERATION (ILF)
INTERNATIONAL COUNCIL OF CRUISE LINES (ICCL)
INTERNATIONAL ASSOCIATION OF DRY CARGO SHIPOWNERS (INTERCARGO)
INTERNATIONAL MARITIME LECTURERS ASSOCIATION (IMLA)

1.4 In welcoming the participants, the Secretary-General referred to the recently announced 50% reduction in the workload of the Salvage Association since 1990 and remarked that, since one of the factors leading to this reduction was the improvement in ship safety, the Sub-Committee, being responsible to a great extent for the enhancement of operational safety, deserved full credit for its valuable contribution to this most welcome improvement.

He then referred to important decisions taken by A 20 and MSC 69 pertinent to the Sub-Committee's work programme which included a number of resolutions concerning general principles for ship reporting systems and ship reporting requirements, guidelines for vessel traffic services and procedures for the adoption and amendment of traffic separation schemes, routeing measures, including archipelagic sea lanes, and ship reporting systems. Having mentioned that MSC 69 had adopted a partial system of archipelagic sea lanes in Indonesian archipelagic waters, he observed that the mechanism for considering archipelagic sea lane proposals devised by NAV 43 had contributed considerably to the successful outcome of this new activity of IMO.

Turning to the question of safe navigation through the Strait of Istanbul, the Strait of Çanakkale and the Marmara Sea, the Secretary-General referred to the statement by the Turkish delegation at MSC 69 that the Turkish national regulations were being revised and a VTS was to be established and that Turkey was prepared to co-operate in working out a new report on safety of navigation in the Straits and the Marmara Sea, MSC 69 had, therefore, decided to take no action on the relevant parts of the NAV 43 report at that session. Instead, it decided that work to prepare a new report, covering all aspects of safety and environmental protection, including the review of the IMO Rules and Recommendations on Navigation through the Strait of Istanbul, Strait of Çanakkale and the Marmara Sea, should start at this session of the Sub-Committee with the co-operation of Turkey.

The Secretary-General reiterated that his main concern in this matter was that the IMO Rules and Recommendations responded adequately to the actual needs of safe navigation through the areas they cover and urged all those involved to co-operate, within the spirit of resolution A.859(20), in the search for a viable solution which would enhance the safety of navigation.

The Secretary-General also referred to important matters to be considered during the session, including routeing measures, mandatory ship reporting systems, voyage planning, performance standards for navigational equipment, revision of SOLAS chapter V and the comprehensive review of the High-Speed Craft Code. He added that he attached great importance to the proposed amendments to the Collision Regulations, in particular those relating to high-speed craft, which MSC 69 has asked the Sub-Committee to consider as a priority issue.

The Secretary-General informed the Sub-Committee of the decision of MSC 69 to review the Guidelines on the organization and method of work of MSC and MEPC and their subsidiary bodies and reiterated the view that the Committees should not lose sight of their main purpose, which was to enhance safety and pollution prevention and, therefore, they should not become a slave to the guidelines. The guidelines should be used for the purpose for which they were devised, that is to increase the efficiency of the Committees in their search for enhanced safety and environmental protection - they should not be allowed to become an end unto themselves, but they should be used as a positive tool for improving safety and protection of the marine environment.

1.5 The Chairman thanked the Secretary-General for his words of encouragement and stated that the Secretary-General's advice and requests would be given every consideration in the Sub-Committee's deliberations.

1.6 The agenda of the session, including a list of documents submitted under each agenda item, is given in annex 1.

2 DECISIONS OF OTHER IMO BODIES

The Sub-Committee noted, in general, decisions pertinent to its work taken by the fortieth session of the Marine Environment Protection Committee (MEPC), the twentieth session of the Assembly, the twenty-ninth session of the Sub-Committee on Standards of Training and Watchkeeping (STW), the third session of the Sub-Committee on Radiocommunications and Search and Rescue (COMSAR), the forty-first session of the Sub-Committee on Design and Equipment (DE), the forty-first session of the Marine Environment Protection Committee (MEPC) (NAV 44/2 and NAV 44/2/Add.1), the Maritime Safety Committee at its sixty-ninth session (NAV 44/2/1 and NAV 44/2/2 and Corr.1), the forty-fifth session of the Technical Co-operation Committee (TC) (NAV 44/2/3), the sixth session of the Sub-Committee on Flag State Implementation (FSI) (NAV 44/2/4) and took action as reported under the relevant sections of this report.

3 ROUTEING OF SHIPS, SHIP REPORTING AND RELATED MATTERS

New Traffic Separation Schemes (TSSs)

3.1 At the request of the Government of Peru (NAV 44/3), the Sub-Committee examined a number of proposed traffic separation schemes along the coast of Peru.

3.2 The Sub-Committee was of the opinion that some improvements on the delineation and description of the proposed schemes were necessary.

3.3 The delegation of Peru agreed to review the proposed traffic separation schemes and indicated that it would submit a revised proposal for consideration with a view to adoption at the earliest possible opportunity.

Routeing measures other than TSSs
Dover Strait Traffic Separation Schemes - Area to be Avoided

3.4 The Sub-Committee considered a proposal by the United Kingdom (NAV 44/3/3) for an "Area to be avoided" around the F3 station, which lies on the separation line between the traffic lanes on the Traffic Separation Schemes (TSSs) in the Dover Strait.

3.5 The Sub-Committee noted that the F3 station is an area of heavy crossing traffic with some 11,000 crossing movements per annum, and agreed to approve the proposed "Area to be avoided" as given in annex 2, which the Committee is invited to adopt and which will be implemented at 0000 hours UTC six months after adoption by the Committee.

Amendments to the eastern boundary of the TSS in the Strait of Singapore, Rules for vessels navigating through the Straits of Malacca and Singapore and mandatory ship reporting system in the Straits of Malacca and Singapore

3.6 As instructed by MSC 69, the Sub-Committee considered the proposal by SIGTTO and INTERTANKO (MSC 69/5/9) proposing an extension of a further seven miles to the north-east of the eastern boundary of the traffic separation scheme in the vicinity of Horsburgh Lighthouse, proposing amending Rule 8 and Rule 12, including introduction of identifying lights (a flashing red light) for vessels carrying dangerous cargoes and the format and reporting requirements of the reporting system already adopted by MSC 69.

3.7 SIGTTO advised the Sub-Committee that, since the submission of the Joint Paper at MSC 69, a meeting had taken place between the three littoral States, namely Indonesia, Malaysia and Singapore, SIGTTO and INTERTANKO. During this meeting the background to all items on the Joint Paper were explained and discussed. The conclusion of the meeting was that the littoral States shared the concerns of SIGTTO and INTERTANKO with regard to length of tow and would welcome expert opinion as to what constitutes an optimal length of tow within the region, from NAV 44. With all other items it was agreed that the proposals of SIGTTO and INTERTANKO would be monitored, especially those that involve voluntary actions by SIGTTO and INTERTANKO members. The littoral States may, on conclusion of this monitoring, submit a joint proposal to amend the revised routeing measures and ship reporting system in the Straits.

It was also agreed that a continuing dialogue should take place between the littoral States, SIGTTO and INTERTANKO on ways to enhance the safety of navigation in the Straits.

3.8 Malaysia informed the Sub-Committee that the removal of hazards to navigation associated with the wreck of the "ICL Vikraman" was successfully completed on 19 July 1998. The wreck had been cropped to leave a water depth of at least 23 metres below chart datum, and the relevant notice to mariners had been issued.

Preparation of a new report covering all aspects of safety and environmental protection, including the review of the IMO Rules and Recommendations on Navigation through the Strait of Istanbul, Strait of Çanakkale and the Marmara Sea

3.9 The Sub-Committee noted that MSC 69, having noted a statement by the Turkish delegation that the Turkish national regulations were being revised and a VTS was to be established and that Turkey was

prepared to co-operate in working out a new report on safety of navigation in the aforementioned Straits and the Marmara Sea, decided to take no action on the relevant parts of the NAV 43 report during the session under review. Instead, MSC 69 decided that work to prepare a new report, covering all aspects of safety and environmental protection, including the review of the IMO Rules and Recommendations on Navigation through the Strait of Istanbul, Strait of Çanakkale and the Marmara Sea, should start at NAV 44 with the co-operation of Turkey.

3.10 The delegation of Turkey made the statement given in annex 3.

3.11 In response, the delegation of the Russian Federation made the statement given in annex 4.

3.12 Due to its heavy workload the Sub-Committee was unable to complete a new report but prepared parts of a preliminary draft for further consideration. The preliminary draft is given in annex 5.

3.13 Cyprus reserved its position on the recommendation in annex 5 on ship reporting and navigation information based on the principle, that all recommendations should be in conformity with established principles and instruments of international law.

3.14 Turkey objected to the inclusion of the part of a preliminary report on the conditions in the Strait of Istanbul, Strait of Çanakkale and the Marmara Sea as an annex to the report of NAV 44. Turkey holds the opinion that the preliminary report did not accurately reflect the discussions and the views of the Coastal State in particular. Furthermore, despite Turkey's repeated requests to include (in brackets) the following text in the last paragraph of the report for further consideration in future work, this proposal was not agreed to by the other Members of the Sub-Commitee:

> "The Working Group agreed that these risks should be taken into consideration by all during efforts to enhancing maritime safety and protection of the environment. Necessary measures introduced to this end should be in confirmity with relevant international instruments."

Turkey also objected to the inclusion at annex to the report any "structure" to be followed during further consideration of a new report. Turkey expressed that in their opinion there was no agreement either on the contents of the list which is not an exhaustive one or on the order of topics to be discussed. Furthermore, although a preliminary discussion took place during the Sub-Committee on topics to be taken up, the discussion did not include the possibility of annexing a "structure" to the report at this point in time.

3.15 The Sub-Committee, conscious of the need to further progress work on this issue at the earliest possible opportunity, considers it would be beneficial to this effect if a Working Group on Ships' Routeing could meet at MSC 70 and, for this reason, it strongly recommended to the Committee that appropriate measures are put in place for such a Working Group to meet at the Committee's forthcoming seventieth session.

3.16 In accordance with paragraphs 44 and 46 of the Guidelines on the organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies (MSC/Circ.816 and MEPC/Circ.331) and because of the importance of the issue, the deadline for submission of documents to MSC 70 on this issue was extended to 9 October 1998.

Amendments to the General Provisions on Ships' Routeing

3.17 The Sub-Committee considered the proposal by ICS (NAV 44/3/4) for an amendment to Section 6 "Design Criteria" of the General Provisions on Ships' Routeing (resolution A.572(14), as amended) to ensure that the use of traffic separation schemes are designed so as to enable ships using them to comply with the Regulations for Preventing Collisions at Sea, 1972, in particular Rule 10.

3.18 The Sub-Committee, except Turkey, agreed with the proposal of ICS to amend section 6 "Design Criteria" of resolution A.572(14) as amended. The Committee is invited to adopt the proposed amendments given in annex 6.

3.19 The Sub-Committee, except Turkey, also agreed that established traffic separation schemes which do not meet the above mentioned requirement should be reviewed and, if found necessary, amended.

3.20 Turkey objected to the proposal submitted by the ICS as they were of the opinion that the proposal was purely designed to change IMO adopted TSS which have been successfully implemented in the Strait of Istanbul, the Strait of Çanakkale and the Marmara Sea. Turkey further stated that the action mentioned in paragraph 3.19 above was not applicable in all cases and is not compatible with subparagraph (b)(ii) of Rule 10 of the COLREGs. The statement by the delegation of Turkey is given in annex 7.

New mandatory ship reporting systems

3.21 In view of the density of traffic, the navigational hazards and the vulnerable and sensitive environmental nature of the areas concerned, the Sub-Committee considered proposals by the United States (NAV 44/3/1) and France and the United Kingdom (NAV 44/3/2) for mandatory ship reporting systems to be established for ships navigating:

.1 "Off the northeastern and the southeastern coasts of the United States"; and

.2 "In the Strait of Dover/Pas-de-Calais".

3.22 The Sub-Committee noted that as proposed by the United States, the mandatory ship reporting system off the southeastern coast of the United States would operate from 15 November to 15 April, which includes the calving season for right whales in this area; whilst the system off the northeastern coast would operate throughout the year as right whales have been sighted in this area throughout the year.

3.23 The Sub-Committee also noted the information provided by the United States (NAV 44/INF.4) concerning the critically endangered status of the northern right whales and the threat posed to the species by the international maritime traffic in the North Atlantic and justifying the proposed mandatory reporting systems off the northeastern and the southeastern coasts of the United States .

3.24 The United States further informed the Sub-Committee that:

.1 the mandatory ship reporting system proposed by the United States will not be used to direct a mariner to alter course, speed or operation and is not intended to interfere with the freedom of navigation. It will, in accordance with regulation V/8-1 and the Guidelines and Criteria for Ship Reporting Systems (resolution MSC.43(64)), provide beneficial information to ships to assist them in navigating safely through the areas and to reduce ship strikes of right whales;

.2 the objective of this mandatory reporting system is to provide mariners entering critical habitat areas with timely notice and other relevant information including recent sightings where available to reduce the potential for collisions between ships and right whales. This system will assist mariners to navigate safely through the area by informing them of a potential navigation hazard and other beneficial information and thus directly contribute to the survival and recovery of the right whale;

.3 the purpose of the mandatory ship reporting system is not to assess liability against a ship's master for striking a right whale. The United States intends to use information on ships' routes in the aggregate for research purposes and to assess the effectiveness of measures taken. The United States considers that the mandatory ship reporting system information would be of little if any value outside the operation of the reporting system itself. This reporting system will be beneficial to a ship's master who is under investigation for hitting a right whale because it provides evidence of a mariner's good faith, for example the Endangered Species Act is primarily concerned with intentional actions not accidents. Reporting would thus operate in the master's favour in this context;

.4 the United States does not support the proliferation of mandatory ship reporting systems or the exercise of coastal State jurisdiction inconsistent with international law and the Law of the Sea Convention. The United States recognizes that ship reporting systems that have been adopted to date for the protection of the marine environment have been for the purpose of preventing marine pollution from ships, not for purposes of protecting particular marine species from direct physical impacts with ships, such as collisions. The United States is convinced, however, that ship reporting systems for the specific purpose of protecting populations of single marine species from direct physical impacts of ships, such as collisions, may be warranted if there is clear scientific evidence that:

.1.1 the population of a marine species is immediately endangered with extinction;

.1.2 major international shipping lanes pass through an area or areas of habitat critical for the population; and

.1.3 the greatest known threat to the survival and recovery of the population is posed by direct physical impacts from ships, such as collisions.

.5 with respect to the Western North Atlantic Right Whales, it is important to note that:

.1.1 the species is listed internationally as endangered on Annex I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and in the International Union for the Conservation of Nature Red Book;

.1.2 a group of international scientific experts, convened by the International Whaling Commission to evaluate the status of right whales internationally, has recognized the urgent need for protective measures to prevent the demise of this population;

.1.3 the population size, as assessed by the group of international scientific experts, is estimated to have fallen to approximately 300 whales, a level that poses the threat of its extinction;

.1.4 the normal shipping lanes off the east coast of the United States pass through two areas identified by the group of international scientific experts as habitat critical for the survival of the population;

.1.5 the best available scientific information indicates that collisions with ships are currently the greatest known non-natural cause of mortality in the population;

.1.6 the United States believes that a ship reporting system limited to the areas defined in its proposal on the basis of documented, peer-reviewed scientific research on the distribution and abundance of the population on right whales is justified in light of the exceptional circumstances described above. The United States further believes that the standard that the United States proposal establishes for the adoption of a mandatory ship reporting system for the protection of a single species is extremely high and it is highly unlikely that there will be a proliferation of proposals that meet this standard; and

.6 the United States will review the reporting system no later than 3-5 years after the implementation date. Advances in communication technologies and carriage requirements, including automatic identification systems (AIS) if appropriate, will be evaluated. The effectiveness of this mandatory reporting system will be reviewed and the results will be presented to the Sub-Committee.

3.25 A majority was of the opinion that the mandatory reporting system proposed by the United States was justified in accordance with the rules and recommendations of IMO and agreed with the proposal as amended of the mandatory ship reporting system for protection of the endangered North Atlantic right whales in sea areas off northeastern and southeastern coasts of the United States.

3.26 A substantial minority could not agree with the amended proposal and expressed preference for a recommendatory reporting system to cover the needs of the United States in the protection of right whales. The minority was not convinced of the effectiveness of the proposed system and was of the opinion that the approval of the system would create an undesirable precedent.

3.27 The Sub-Committee expressed serious concerns over the potential for the proliferation of proposals for mandatory ship reporting systems focused on a single species. The Sub-Committee endorsed the views of the United States set forth in paragraphs 3.24.4 and 3.24.5 above.

3.28 In support of the proposal of the United States (NAV 44/3/1), Chile declared that, as pointed out in regulation V/8-1 of the 1974 SOLAS Convention, ship reporting systems contribute not only to the safety of life at sea and the safety of navigation, but also to the protection of the marine environment. Chile considered that the proposal by the United States conformed to current international standards on this matter, and that the proposed mandatory reporting system for prior notification did not impair the rights of States in relation to freedom of navigation in the exclusive economic zone (EEZ), since it had to be specially noted that the protection and preservation of the marine environment are fundamental obligations of all States.

3.29 The Sub-Committee amended the mandatory reporting system proposed by the United States to conform with the format adopted by the Committee at its sixty-sixth session.

3.30 Further information justifying the mandatory reporting system proposed by the United States is given in annex 8 to the report.

3.31 The Sub-Committee slightly amended the mandatory ship reporting system proposed by France and the United Kingdom.

3.32 Further information justifying the mandatory ship reporting system proposed by France and the United Kingdom is given in annex 9 to this report.

3.33 The Sub-Committee prepared the draft MSC resolution on mandatory ship reporting systems "Off the northeastern and southeastern coasts of the United States" and "In the Strait of Dover/Pas-de-Calais", given in annex 10 and forwarded it to the Committee for adoption, in accordance with resolution A.858(20). The two systems will enter into force at 0000 hrs UTC on 1 July 1999.

Draft SN Circular for explaining to mariners the operational significance to the navigation of ships when transiting through archipelagic waters

3.34 The Sub-Committee agreed a draft SN Circular on guidance for ships transiting through archipelagic waters, given in annex 11 which the Committee was invited to approve.

3.35 The Philippine delegation explained the regime of internal waters around, between and connecting the islands of the Philippine archipelago. The regime, as defined by the Constitution, is the basis for the regime of internal water passage in Philippine waters. The delegation noted the various statements of the Philippines in international fora that, as a State party to UNCLOS, it intends to harmonize its internal regulations with the provisions of UNCLOS. The harmonization is an on-going process. In this context, it reserved its right to submit amendments to the SN Circular for ships transiting Archipelagic waters, as required by the outcome of this harmonization process.

4 AMENDMENTS TO THE COLREGs

4.1 The Sub-Committee recalled that at its forty-third session it invited Member Governments to submit their comments and proposals on amendments to the COLREGs related to high-speed craft to NAV 44.

4.2 The Sub-Committee noted that MSC 69, having discussed documents MSC 69/20/4 (Japan) and MSC 69/20/11 (Netherlands, IAIN and IFSMA), included, in the Sub-Committee's work-programme, a high priority item on "Amendments to the COLREGs", with a target completion date of 2000 and referred the above-mentioned documents to NAV 44 for consideration.

4.3 The Sub-Committee also noted that with regard to the proposals made in MSC 69/20/11, MSC 69 instructed it to deal with the issue pertaining to high-speed craft with priority, and, with regard to conflicting actions in collision avoidance and AIS transponders, to develop specific terms of reference for approval by the Committee.

4.4 The Sub-Committee considered amendments to the COLREGs, taking account of the submissions from the Netherlands, IAIN and IFSMA (MSC 69/20/11), United Kingdom (NAV 44/4), FOEI (NAV 44/4/1) and Japan (MSC 69/20/4).

4.5 The Sub-Committee as instructed by the Committee, considered the development of terms of reference for including the impact of AIS transponders and the problem of conflicting actions in collision avoidance as matters to be included in the amendments to the COLREGs. The majority of the Sub-Committee was of the opinion that it is premature to include the use of AIS transponders as a matter of consideration for the Collision Regulations. The Sub-Committee prepared the terms of reference to include conflicting actions in collision avoidance in the consideration of amendments to the COLREGs given in annex 12 for consideration by the Committee.

4.6 The United Kingdom, supported by Greece, the Netherlands and Panama, expressed concern that the inappropriate use of AIS transponders in collision avoidance situations could lead to vessels failing to comply with the International Regulations for Preventing Collision at Sea, specifically the requirement to take early action to avoid collision.

4.7 The Sub-Committee gave preliminary consideration to the proposals on amendments to the COLREGs including high-speed craft and agreed to further consider them at NAV 45.

4.8 Members are invited to submit their comments and proposals on these issues to NAV 45.

4.9 With regard to the proposal of Japan (MSC 69/20/4) on the requirements of whistles, bells and lights for small ships there was general support and the Japanese delegation offered to prepare more detailed proposal, taking into account technical comments received during this session and intersessionally to facilitate the discussion at NAV 45. The members were invited to send comments to the point of contact*.

4.10 With regard to the proposal of FOEI (NAV 44/4/1), Hong Kong, China agreed in respect of amendments to the Collision Regulations that a new routeing measure should be introduced in the form of a route to be followed by high-speed craft. Hong Kong, China drew attention of the members to Admiralty Chart No. 341 which was displayed in the room. A traffic Separation Scheme for High-Speed Craft has been in existence for the last 15 years in Hong Kong and Chinese waters and has worked very well. Members might consider this information when dealing with the subject in the future.

5 REVISION OF SOLAS CHAPTER V

General

5.1 The Sub-Committee noted that the twentieth Assembly adopted performance standards for shipborne voyage data recorders (VDRs) by resolution A.861(20) and that MSC 69 adopted recommendations on performance standards for universal automatic identification systems (AIS) by resolution MSC.74(69).

5.2 The Sub-Committee also noted that the Committee (MSC 69/22, paragraph 5.73) invited IHO to consider the proposal in document MSC 69/5/3 (Italy), which had also been submitted directly to NAV 44 (NAV 44/5/10), and submit comments, if any, as early as possible to NAV 45 (under its agenda item "Revision of SOLAS chapter V") for the Sub-Committee to take them into account in its revision of chapter V.

5.3 In considering the provisional draft revised SOLAS chapter V (NAV 44/5, annex), the Sub-Committee took action as indicated hereunder.

5.4 The Sub-Committee confirmed that draft regulations 5, 8, 9, 10, 11, 12, 13, 21, 23, 24, 26, 28, 30, 35, 36, 37 and 39 were approved by NAV 43 and would not be revisited, as no new proposals had been submitted on those regulations.

Regulation 1 - Application
Regulation 2 - Definitions and clarifications
Regulation 3 - Exemptions

5.5 The Sub-Committee did not consider regulations 1, 2 and 3.

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Regulation 4 - Navigational warning service

5.6 The Sub-Committee approved regulation 4 with the amended title "Navigational warning service".

Regulation 6 - Ice patrol service, management and cost

5.7 The Sub-Committee considered a proposal by the United States (NAV 44/5/8 and Corr.1) and, whilst considerable support was expressed in principle, a number of questions were raised, in particular related to the financing of the North Atlantic Ice Patrol.

5.8 In his intervention, the Secretary-General suggested that the main issue the Sub-Committee should give an answer to was whether the ice patrol had served well the safety of navigation since its establishment in 1914. In his view, the fact that no accidents had been reported involving icebergs since the service had been provided led to the conclusion that, together with the other measures taken to improve the safety of navigation, the service had contributed positively to the enhancement of navigational safety in the area it covered.

He then suggested that, if the Sub-Committee agreed that the answer to the above question was in the affirmative, the second question should be whether the maritime community needed the ice patrol service to continue to be provided. Again, if the answer was yes, then SOLAS chapter V should contain provisions to that effect.

Recognizing, however, that there were aspects surrounding the existence and continuation of the service which went beyond pure navigational safety, his view was that those aspects, mainly the assessment of contributions to the budget of the service by those benefitting from it, should be a matter for the Maritime Safety Committee to decide, to which the issue should be referred for consideration and action as appropriate. What should go to the Committee should be clearly defined by the Sub-Committee at this session.

5.9 The Secretary-General's statement having been supported by several delegations, the Sub-Committee established a drafting group to prepare the text of specific issues that the Sub-Committee would agree should be addressed by the Committee.

5.10 The Sub-Committee considered the activities of the North Atlantic Ice Patrol and the intention of the Parties to the Agreement regarding Financial Support of the North Atlantic Ice Patrol (NAIP Agreement) to revise the financial arrangements for the provision of the relevant services.

5.11 The delegation of the United States informed the Sub-Committee that the seventeen Contracting Governments which contribute to the NAIP comprise only about half of the benefiting tonnage and that as a result more than 65 Contracting Governments are receiving valuable services to which they, or the ships entitled to fly their flag, are not contributing, thereby obtaining an unfair competitive advantage.

5.12 In the course of the discussion, the delegation of the United States was asked the following:

.1 whether the Ice Patrol was the most effective way of providing such service today, i.e., could satellite data be used instead of the Ice Patrol;

.2 how much do ports in Canada and the United States benefit from the services;

.3 are Canada and United States using this information for military purposes; and

.4 whether the concept of user pays for ice patrols could be extended to other aids to navigation.

5.13 Responding to these questions the delegation of the United States informed the Sub-Committee that satellite data did not provide a sufficiently detailed picture of the icebergs since satellites cannot pick up low lying icebergs. It further stated that there was no military use of the system as far as they were aware, that Canada and the United States bear the capital cost of the North Atlantic Ice Patrol infrastructure and they were only asking for recovery of the operating cost, and that this would not constitute a precedent, as this undertaking was a longstanding legal obligation of States parties to SOLAS.

5.14 Having received the report of the drafting group, the Sub-Committee agreed that the North Atlantic Ice Patrol aids in safety of navigation and should be funded by Contracting Governments and should be continued, but arrangements for financial contribution by all Contracting Governments should be carefully examined and agreed to by the Committee.

5.15 Some delegations expressed their preference to use the user-pay principle rather than compulsory contribution by Contracting Governments. However, some delegations expressed the view that the "user-pay" principle could only be used with the consent of the flag State since otherwise it might not be in line with the provisions of UNCLOS and the principle of the freedom of navigation.

5.16 Some delegations questioned the introduction of a mandatory financial contribution system as a treaty obligation by means of the tacit acceptance procedure of SOLAS, 1974 as amended.

5.17 The Sub-Committee agreed that the North Atlantic Ice Patrol contributes to the safety of life at sea and the protection of the marine environment.

5.18 The Sub-Committee recognized that it lacked the relevant expertise to consider the issues fully and decided to recommend to the Committee that the North Atlantic Ice Patrol should be continued and also continue to be managed by the United States and that the Committee should establish and finalize the terms, conditions and the legal framework under which the North Atlantic Ice Patrol should be operated and financed.

5.19 A preliminary draft text of regulation 6 - Ice patrol service, management and cost recovery is given in annex 13 for consideration by the Committee.

Regulation 7 - Search and Rescue Services

5.20 The Sub-Committee did not concur with a proposal by the Russian Federation (NAV 44/5/11) to retain the text of existing regulation V/15 and approved regulation 7 with the word "surveillance" deleted.

Regulation 14 - Ships' manning

5.21 The Sub-Committee, noting that STW 29 (STW 29/14, paragraph 9.7), when considering the review of resolution A.481(XII) on Principles of safe manning, had noted that the title of the document is "Minimum Safe Manning Document", whereas in SOLAS regulation V/13(b) the document is described as "..an appropriate safe manning document or equivalent issued by the Administration as evidence of the minimum safe manning considered necessary.." and that STW 29 wished to retain the title "Minimum Safe Manning Document", agreed to insert the word "minimum" in the first line of paragraph 2 between "appropriate" and "safe" and approved regulation 14, so amended.

Regulation 15 - Principles relating to bridge design, arrangement of navigational systems and equipment and bridge procedures

5.22 The Sub-Committee considered proposals by Japan (NAV 44/5/16), the Russian Federation (NAV 44/5/11), the United States (NAV 44/5/6) and IACS (NAV 44/5/1) and agreed in principle to the draft regulation 15 proposed by the United States but deferred approval until NAV 45. The Sub-Committee noted that this proposed regulation reflected the guidance contained in resolution A.850(20) - Human element vision, principles and goals for the Organization.

Regulation 16 - General requirements for system design

Regulation 17 - Maintenance of equipment

5.23 The Sub-Committee, having considered proposals by Germany and the Netherlands (NAV 43/5), Japan (NAV 44/5/16), the Russian Federation (NAV 44/5/11) and the United Kingdom (NAV 44/5/12), agreed to delete paragraph 2 of regulation 16 and to combine regulations 16 and 17 with the title "Maintenance of equipment" and deferred approval until NAV 45.

Regulation 18 - Electromagnetic compatibility

5.24 The Sub-Committee, having considered proposals by Germany and the Netherlands (NAV 43/5), Japan (NAV 44/5/16) and the United Kingdom (NAV 44/5/12), deferred approval of regulation 18 until NAV 45.

Regulation 19 - Approval and surveys of navigational systems and equipment

5.25 The Sub-Committee, having given preliminary consideration to regulation 19, deferred approval until NAV 45.

Regulation 20 - Requirements for shipborne navigational systems and equipment and performance standards

5.26 The Sub-Committee, having considered proposals by Germany and the Netherlands (NAV 43/5), Japan (NAV 44/5/14 and NAV 44/5/16), the Russian Federation (NAV 44/5/11), the United Kingdom (NAV 44/5/12), CIRM (NAV 44/5/7) and FOEI (NAV 44/5/5) on paragraphs 1.1 to 1.9, agreed in principle on the requirements contained therein, as amended. Due to time constraints the Sub-Committee was unable to give consideration to paragraphs 1.10, 1.11, 2, 3, 4 and 5 of regulation 20 and deferred consideration until NAV 45.

Regulation 21 - Use of heading and/or track control system

5.27 The Sub-Committee agreed to the editorial amendment of substituting "manual" for "human" and approved regulation 21, so amended.

Regulation 22 - Voyage data recorder

5.28 The Sub-Committee considered proposals by Japan (NAV 44/5/15), the Russian Federation (NAV 44/5/11), the United Kingdom (NAV 44/5/9) and the United States (NAV 44/5/6) and, while agreeing on the carriage requirements of VDRs for ro-ro passenger ships on international voyages, did not reach concensus with regard to the applicability to other ship types. A majority favoured a phased-in implementation as proposed by the United Kingdom (NAV 44/5/12), while a substantial number of delegations could not support this extension. The provision on the annual testing of equipment as proposed by the United States (NAV 44/5/6) was supported by some delegations.

Regulation 25 - Nautical charts and publications

5.29 The Sub-Committee did not consider regulation 25.

Regulation 27 - Records of navigational activities

5.30 The Sub-Committee did not consider regulation 27.

Regulation 29 - Pilot transfer arrangements

5.31 The Sub-Committee, noting that NAV 43 had approved regulation 29 did not, due to time constraints, consider proposals by Germany (NAV 44/5/3) and IMPA (NAV 44/5/4), and deferred consideration until NAV 45.

Regulation 33 - Operational limitations

Regulation 34 - Masters discretion for safe navigation

Regulation 38 - Avoidance of dangerous situations

5.32 The Sub-Committee, noting that NAV 43 had approved regulations 33, 34 and 38, deferred consideration of a proposal by the United Kingdom (NAV 44/5/12) until NAV 45.

Proposed new regulations

5.33 The Sub-Committee, due to time constraints, did not consider a proposal by the United States (NAV 44/5/6) to include in chapter V the proposed regulation on "Voyage planning", a proposed regulation on Company's responsibility for safe navigation and a proposed regulation on preparing for the voyage, submitted by Germany (NAV 44/5/13), and deferred consideration until NAV 45.

Further consideration of the draft revised SOLAS chapter V at NAV 45

5.34 To facilitate its work at NAV 45 the Sub-Committee invited the Working Group to prepare a revised text of the draft chapter V based on the decisions taken by the Sub-Committee and with regulations not decided upon by the Sub-Committee in square brackets for submission as a basic document for consideration at NAV 45.

5.35 Panama intervened during the discussion of Regulations 15, 18, 19, 20 and 22 to state that they did not apply to vessels without means of propulsion, and asked that the Sub-Committee take that into consideration.

5.36 Members were invited to consider the revised text prepared by the Working Group and to submit comments and proposals on the regulations still under consideration for NAV 45.

5.37 The Sub-Committee noted concerns expressed by Japan on possible implications of the strengthened requirements of a revised SOLAS chapter V.

5.38 The Committee was invited to extend the target completion date of this item in the Sub-Committee's work programme to 1999.

6 DEVELOPMENT OF MEASURES COMPLEMENTARY TO THE INF CODE

Voyage/Route planning

6.1 The Sub-Committee recalled that at its forty-third session it developed a preliminary draft Assembly resolution and guidelines for voyage planning (NAV 43/15, annex 16) to be considered further at NAV 44 and also agreed that if appropriate a reference to a resolution on Guidelines for Voyage Planning could be made in the INF Code.

6.2 The Sub-Committee noted that MEPC 40 considered a proposal by Solomon Islands (MEPC 40/15/3) emphasizing that voyage planning is important for the safety of navigation, the safety of the ship and the protection of the environment and proposing an amendment to the INF Code, which would take this into account. In addition, Solomon Islands made the point that voyage planning is already carried out and, therefore, there should not be any objection to including the requirement for it in the INF Code. Whilst there was some support for this proposal, MEPC 40 agreed that it was premature to include such a requirement at this stage but it would be reconsidered once the NAV Sub-Committee had finalized the Guidelines on voyage planning.

6.3 The Sub-Committee further noted that MEPC 41 recalled that it had indicated that the development of shore-based emergency response plans may be discussed at MEPC 41 whilst recognizing that it would be premature to discuss the requirement for voyage planning in the INF Code until the NAV Sub-Committee has finalized the Guidelines for Voyage Planning.

6.4 The Sub-Committee considered the draft Assembly resolution and guidelines for voyage planning (NAV 43/15, annex 16) including the proposals by FOEI (NAV 44/6) on procedures for the important task of checking compasses. The Sub-Committee could not accept the proposals by FOEI, as those proposals do not concern voyage planning, but are related to proper watchkeeping.

6.5 The Sub-Committee prepared a preliminary draft Assembly resolution and guidelines for voyage planning, applying to all ships, given in annex 14, but deferred further consideration until NAV 45, and invited the Committee to agree that voyage planning could be considered at NAV 45 under the agenda item on "Routeing of ships, ship reporting and related matters", and also to delete the item on "Development of measures complementary to the INF Code" from the Sub-Committee's work programme.

6.6 The Committee was also requested to authorize NAV 45 to forward the draft Assembly resolution and guidelines for voyage planning applying to all ships directly to the twenty-first Assembly for adoption.

6.7 The Sub-Committee noted and appreciated the information by Australia (NAV 44/INF.5) contained in the booklet entitled "Voyage Planning: A Standard Procedure".

Prior notification and consultation

6.8 The Sub-Committee noted that MEPC 41 was informed that the issue of prior notification was considered by the twentieth session of the Assembly based on the submission by Ireland (A 20/9/3) in which it was proposed that a resolution be adopted which recognizes the concerns of coastal States in relation to the movement near their shores of vessels carrying INF materials whilst recognizing the need to maintain freedom of navigation and to protect the marine environment in general and the coastal environment in particular. To this end, the proposed resolution would exhort IMO Member States to facilitate the development of bilaterally agreed systems for communicating information on such voyages. This issue was not resolved at the Assembly and that both MSC and MEPC were asked to consider the issue further.

6.9 The Sub-Committee also noted that MEPC 41 recognizing the differing views on this issue, agreed that it should be kept on the agenda for MEPC 42 and, meanwhile, delegations should work together to try and resolve the issue by giving special consideration to those action items identified in Ireland's submission to Assembly (A 20/9/3).

6.10 The Sub-Committee further noted that MSC 69 had noted, that the Assembly, at its twentieth session, considered, through its Committee 2, the issues raised by Ireland but could not resolve them, and agreeing that it was premature to consider the proposed draft resolution, the Assembly recommended both the MSC and MEPC to further consider the issue of "prior notification". Having discussed the matter, MSC 69, having noted arguments that a "prior notification" requirement might result in contravention of UNCLOS and the Convention on Protection of Nuclear Material, it might lead to an undesired precedent for the transportation of other dangerous goods and notification might lead to interference by terrorists, agreed not to pursue the issue further at present.

6.11 The Sub-Committee therefore did not consider the issue of prior notification and consultation pending further guidance from both the MSC and MEPC.

7 NAVIGATIONAL AIDS AND RELATED MATTERS

World-wide navigation system

United Kingdom's Marine Navigation Plan

7.1 Details of the Marine Navigation Plan (MNP) were presented by the United Kingdom to the forty-third session of the Sub-Committee (NAV 43/INF.13).

7.2 The following points arising from the MNP were brought to the attention of the Sub-Committee:

.1 Implementation of the United Kingdom's open public Differential GPS Service was planned from August 1998. Test and subsequently trial transmissions began to be introduced progressively from May this year.

.2 Notice of termination of the contract had been given to Racal Decca Marine Navigation Ltd. for the operation and maintenance of the Decca Navigator System in the United Kingdom. As a result the United Kingdom chains of the Decca Navigator System will cease to operate at the end of March 2000.

.3 It is intended to discontinue the present radiobeacon service currently operated by the three General Lighthouse Authorities (Trinity House, Northern Lighthouse Board and Commissioners of Irish Lights) on 1st February 1999 in accordance with the MNP. (The MNP provided for discontinuation of this service by the year 2000 or sooner).

7.3 The Sub-Committee recalled that:

.1 NAV 43 had agreed to instruct the Secretariat to approach ICAO with a view to establishing a Joint Planning Group and the Secretariat followed this instruction, but no reply from ICAO has been received yet;

.2 as a future GNSS would be a multimodal system, NAV 43 had agreed that ICAO, IHO, IRU and any other interested organizations should be invited to a so-called "user forum" at NAV 44; and

noted that:

.3 having received no reply from ICAO it was felt premature to organize the forum during this session of the Sub-Committee.

7.4 Taking into account the above, the Sub-Committee instructed the Secretariat to contact IRU, IHO and other interested organizations after reception and on the basis of the reply from ICAO, to get the views of the organizations on the establishment of a "user forum" on future GNSS.

Assembly resolution A.860(20) on maritime policy for a future GNSS

7.5 The Sub-Committee noted that the twentieth session of the IMO Assembly adopted resolution A.860(20) on Maritime Policy for a Future Global Navigation Satellite System (GNSS)

7.6 The Sub-Committee further noted that MSC 69 (MSC 69/22, paragraph 20.43) instructed it to keep the maritime policy for a future Global Navigation Satellite System (GNSS) under review and prepare a draft report to the twenty-second session of the Assembly, as necessary, for consideration by MSC 74.

Guidance on chart datums and the accuracy of position on charts

7.7 The Sub-Committee considered the United Kingdom proposal (NAV 44/7/9) for a draft text of an SN Circular containing recommendations/guidelines with respect to the safety aspects of the use of different geodetic datums, as discussed by the Technical Working Group at NAV 43, taking into account the proposal by IEC (NAV 43/7/4), and prepared the draft text of an SN Circular containing guidance on chart datums and the accuracy of positions on charts, given in annex 15. The Sub-Committee instructed the Secretariat to convey annex 15 to IHO for consideration and submission of their comments to NAV 45.

7.8 The Sub-Committee recalled that NAV 43 had requested the IEC to include in IEC 61162-1 a datum message to warn users if a datum in use was not WGS 84 and inform the Sub-Committee accordingly. The Sub-Committee was pleased to receive a report from the IEC that various of the digital sentences within the standard IEC 61162-1 had received further development. One of these DTM - datum reference - has now been completed and is included in the draft 2nd edition of IEC 61162-1, which is currently being circulated for comment, and is expected to be published in early 1999.

Marine electronic systems and the Year 2000 problem

7.9 The Sub-Committee considered the United Kingdom proposal (NAV 44/7/5), drawing attention to the range of problems associated with marine electronic systems and date changes, commonly known as the 'Millennium' or 'Year 2000 problem', including those related to the rollover of the coding used in the GPS system, and, noting that the Committee had already issued guidance on this matter through MSC/Circs. 804 and 864, was of the opinion that this was sufficient.

7.10 The delegation of the United States provided the following information concerning GPS: "The GPS Joint Program Office has determined that all generations of GPS satellites are unaffected by the Year 2000 (Y2K) and GPS End of Week (EOW) Rollover Issues. However, the Civil GPS users may need to verify that their receivers and applications will work properly through these events."

DGNSS Stations on the Brazilian coast

7.11 The Sub-Committee noted information provided by Brazil (NAV 43/INF.2) containing a list of DGNSS stations on the Brazilian coast including a map with the nominal range of stations and noted that these stations provided differential corrections for use with GPS receivers.

Global Navigation Satellite System (GNSS)

7.12 The Sub-Committee noted the information provided by IEC (NAV 44/INF.9) on the need for amendment to various IMO resolutions concerning the Global Navigation Satellite System (GNSS) to keep them updated in view of a series of events that have taken place since their adoption. Such events include amongst others, namely, reports of interference to shipborne GPS receivers from Inmarsat and other sources, the adoption by IMO of resolutions on standards for high-speed craft and the experience from collisions/groundings etc. in which the use and performance of a GPS shipborne receiver has raised concerns with regard to the receiver characteristics. The Sub-Committee invited the Committee to include this topic in its work programme.

Draft performance standards for Raster Chart Display Systems (RCDS)

7.13 The Sub-Committee noted that the IMO/IHO Harmonization Group on ECDIS (HGE) at its eighteenth session, 15-16 September 1997, had considered the draft Performance Standards for Raster Chart Display Systems (RCDS) that were referred back to them by NAV 43 and developed a draft SN circular detailing differences between RCDS and ECDIS. The Sub-Committee also noted that an informal meeting of IHO on HGE matters had developed draft amendments to resolution A.817(19) on Performance standards for ECDIS.

7.14 The Sub-Committee further noted that trials had been conducted by a number of administrations at sea and on a simulator. The sea trials had given positive results and concluded that RCDS made navigation safer. Some Administrations however were of the opinion that more trials were required in order to test out all combinations of type of vessel and voyage. Any future trials should be conducted to test bed requirements developed by HGE.

7.15 The observer from IHO stated that the IHB had established that ENC production by IHO Member States to S-57 Version 3 Standard was far below expectations and that at its WEND Meeting in Goa, India in January 1998 it was agreed that an interm solution had to be found.

7.16 The delegations of the Russian Federation, Norway and Italy preferred a stand alone performance standard but the majority preferred a performance standard associated with ECDIS. This would have the advantage of showing that ENC data is preferred to raster data and that RCDS is an interim measure to be used before ENC data is fully available. There was no evidence that the use of RCDS would slow the production of ENC.

7.17 The delegation of the Russian Federation reserved its position on development and acceptance of draft performance standards for RCDS as amendments to resolution A.817(19) on Performance Standards for ECDIS on the reasons, as follows:

.1 the use of an ECDIS in RCDS mode can be dangerous for navigation in connection with the wide range of limitations of RCDS, listed in the draft SN Circular (NAV 44/WP.2, annex 3);

.2 there is no defined procedure of control and responsibility for the usage of RCDS in areas covered by ENC, issued by a Government-authorized hydrographic office;

.3 there are no clear indications or guarantees, confirming that National Hydrographic Offices will not slow the production of ENC after legitimacy of RCDS;

.4 ECDIS in RCDS mode can be used only when a ship is stocked with a full portfolio of up-to-date paper charts for an intended voyage and a navigator is required to provide the plotting on the paper charts; and

.5 the Sub-Committee was instructed by MSC to develop the draft Performance Standards for RCDS but not to revise the resolution A.817(19) on Performance Standards for ECDIS.

7.18 The delegation of Chile stated that it agreed with having an IMO Performance Standard on RCDS, preferably as a standing-alone document, instead of as Appendix 7 to resolution A.817(19). However, it was adamant for Chile that the category of equivalent to the paper chart should not be given to RCDS. At the same time, Chile would prefer the term "official", instead of "appropriate", when referring to an up-to-date folio of paper charts, on 1.2 of the RCDS mode of operation, to read: "When operating in the RCDS mode, ECDIS equipment should be used together with an official portfolio of up-to-date paper charts".

7.19 The delegation of France pointed out that the consideration of the RCDS performance standards had been on the agenda of this Sub-Committee since NAV 42. Much time and effort had been devoted in the Sub-Committee as well as in the IMO-IHO Harmonization Group on ECDIS (HGE) on this issue. Thanks to the constructive inputs from all parties involved, significant progress was made during NAV 43. Three principles were identified, under which the RCDS concept could be accepted by a majority of participants. These three principles take into due account the fact that RCDS provides many, but not all, of the functionalities of ECDIS. They are:

(1) RCDS is a simplified mode of operation for the ECDIS equipment, to be used as an interim solution until the ENC coverage required for the normal mode of operation is available;

(2) the RCDS mode of operation cannot be used where ENC are available; and

(3) an ECDIS equipment operated in the RCDS mode should be used together with an adequate portfolio of up-to-date paper charts.

NAV 43 required that this issue be further considered at NAV 44, based on comments and proposals provided by Members. The intersessional work conducted by HGE and IHO and reported to this session has logically led, for the sake of clarity and consistency, to the formulation of the draft performance standards as an amendment to the ECDIS performance standards which implements very clearly the three principles just mentioned. The Technical Working Group of this Sub-Committee has duly considered the concerns expressed in the submissions by Norway, the results of simulator trials conducted by the Russian Federation and the results from sea trials conducted by Australia, the United Kingdom and the United States. This has led to two minor modifications of the draft amendment to the ECDIS performance standards submitted by IHO and to some improvement of the draft SN circular on the differences between RCDS and ECDIS. The result was submitted to plenary in annex 2 of NAV 44/WP.2 as reported by the Technical Working Group Chairman.

It should be emphasised that as the RCDS mode of operation is optional, there is no obligation to use it nor to provide RNC coverage, and conditionally, RCDS may be used only where ENC coverage is not yet available. Furthermore Members Governments who cannot yet provide ENC coverage of their waters would have two options:

(a) produce or authorize the interim production of RNC if they feel that the information available in their waters is adequate for safe electronic chart navigation in the RCDS mode of operation, (including the simultaneous use of an adequate folio of up-to-date paper charts),

(b) not produce RNC, nor authorize their interim production by a third party, when the chart information available or local conditions are inappropriate for safe electronic chart navigation in the RCDS, mode of operation.

In summary, the conditions incorporated in the draft amendment to the ECDIS performance standard:

(1) RCDS is an optional and interim mode of operation for ECDIS equipment,

(2) the availability of this mode of operation is fully controlled by national maritime administrations and national charting authorities,

are adequate safeguards to avoid undermining the development of ECDIS and the production of ENC and to avert the unsafe use of the RCDS mode.

Noting that no outstanding safety concern has been identified since NAV 43 and that the important benefit of the so-called "dual fuel" proposal is that electronic chart navigation relying entirely on OFFICIAL and UP-TO-DATE charts can be provided immediately for almost any voyage, France urged the Sub-Committee to endorse the proposal submitted by the Technical Working Group, and to invite the Maritime Safety Committee to adopt it.

7.20 Having considered comments and proposals by Norway (NAV 44/7/12, NAV 44/7/13, NAV 44/7/14, NAV 44/7/15, NAV 44/7/16 and NAV 44/7/17), the Russian Federation (NAV 44/7/10 and NAV 44/7/11), Australia, France, Ireland, Singapore, the United Kingdom and the United States (NAV 44/7/6), the Note by the Chairman of the IMO/IHO Harmonization Group on ECDIS (HGE) (NAV 44/7/4) and IHO (NAV 44/7/8 and Add.1 and 2), a substantial majority of the Sub-Committee agreed the draft amendments to the performance standards for ECDIS (A.817(19)) which incorporates a new Appendix 7 on RCDS for adoption by the Committee.

7.21 These amendments to the performance standards for ECDIS permit the ECDIS equipment to work in two modes; ECDIS mode to be used when ENC data is available and RCDS mode when ENC data is not available. In RCDS mode the equipment does not have the full functionality of ECDIS and the Sub-Committee prepared a draft SN Circular on Differences between RCDS and ECDIS, given in annex 16, for adoption by the Committee.

7.22 The delegation of Italy reserved its position on amending resolution A.817(19) for the following reasons:

.1 after two years of HGE work on a stand-alone Performance Standard for Raster, an IHO informal meeting, held in February 1998 (4 months ago) had instead decided to address the raster issue amending resolution A.817(19). This was a completely different approach that could not be properly studied in only four months and it was not in the terms of reference given to HGE.

Therefore this work should be post-poned until further instruction will come from MSC. Before that, no changes to resolution A.817(18) can be proposed;

.2 conflicting reports had been submitted to the Sub-Committee. In fact, while test reports of Sea Trials had been favourable, on the contrary simulation of critical situations had proven that safety of ship could be compromised. It was noted that both tests and simulation were based on a "stand-alone" system and not in "dual-mode" ECDIS with mode "switch-over".

Disagreement among experts meant that further testing was required. Italy has noted that according to paragraph 4 of resolution A.817(19) any amendment must be agreed by IHO prior to adoption;

.3 Italy considered that the delicate issue of equivalence had important implication on the safety of navigation, liability and insurance claims.

Paragraph 1.2 of draft Appendix 7 should not be left as it is, because it had been proven in the Working Group that it can be interpreted in different ways. Therefore Italy requested that the following alternative wording be used: "when operating in RCDS mode an ECDIS is not accepted as complying with Regulation V/20 of SOLAS Convention;" and

.4 IMO approval of amendments of resolution A.817(19) and preparation of the relevant IEC test standard would not be accomplished before year 2000. Then Italy did not see any use for an RCDS interim solution.

7.23 The delegation of Greece suggested that the question of equivalency of RCDS should be clarified, preferably in the text of SOLAS chapter V in an unambigious way, because of the liaibility issues involved.

7.24 The delegation of Norway pointed out that addressing the RCDS requirements in an Annex to the ECDIS Performance Standards would not serve as IMO performance standards for RCDS, stating minimum requirements. This was because it required that the RCDS equipment shall facilitate functions which a RCDS cannot provide. It was also emphasized that a combined system solution can be achieved by enabling an ECDIS to also meet the requirements of a stand alone performance standard.

Electronic Chart Systems (ECS)

7.25 The Sub-Committee considered NAV 44/7/4 (Chairman of HGE) and noted that the IMO/IHO Harmonization Group on ECDIS (HGE) had considered the issue of guidelines for ECS but could not complete this task at its eighteenth session. The Sub-Committee also noted further work by the IHO which concluded that it would be possible to only provide advice on ECS and not guidelines. The majority of the Sub-Committee was therefore of the opinion that no further work was needed.

Development of new performance standards for integrated navigation systems (INS)

7.26 The Sub-Committee noted the information provided by Finland (NAV 44/INF.3) on the operational and design standards for integrated navigation systems (INS) which highlights the close relationship between integrated navigation systems (INS) and integrated bridge systems (IBS), and lays strong emphasis on the need to examine this aspect thoroughly when considering development of new performance standards for INS. The Sub-Committee invited Finland to use the information given in NAV 44/INF.3 with the aim of producing a MSC circular at a future session of the Sub-Committee and invited the Committee to include IBS operational aspects in the Sub-Committee's work programme.

7.27 The Sub-Committee, taking into account MSC 69/INF.4/Add.1, MSC 69/INF.7 and MSC 69/INF.13, as instructed by MSC 69, considered the proposal by IEC (NAV 44/7/3) and agreed the draft performance standards for integrated navigation systems (INS), for adoption by the Committee.

Development of performance standards for sound reception systems

7.28 The Sub-Committee considered the report of the Technical Working Group (NAV 44/7, paragraph 2.3 and annex 3) and the comments by Norway (NAV 44/7/12) and agreed the draft performance standards for sound reception systems, for adoption by the Committee.

Development of new performance standards for electromagnetic compasses

7.29 The Sub-Committee recalled that at its forty-third session, it had considered the draft recommendation on performance standards for marine electromagnetic compasses (NAV 43/7, annex 2) developed by the Technical Working Group at NAV 42 and the editorial comments by ISO (NAV 43/7/15) and agreed the draft performance standards, given in annex 21 of NAV 43/15, for adoption by the Committee.

7.30 The Sub-Committee noted that at MSC 69, CIRM (MSC 69/5/4) pointed out that a discrepancy exists between the text of the draft performance standard and the requirements of three equipment listed in the draft SOLAS regulation V/20, namely, a 9 GHz radar or other means, an electronic plotting aid or other means and an automatic identification system (AIS). These three equipment all require a transmission of a common reference of true (not magnetic) heading. The magnetic compass required by paragraph 1.4.1 of draft regulation V/20 would not necessarily be capable of providing the common reference of true heading and, moreover, it is not clear whether the draft performance standards for the electromagnetic compass (EMC) would also be applicable to a Transmitting Magnetic Compass (TMC), which could be carried in compliance with draft regulation V/20. If not, then separate performance standards for the TMC might be necessary. CIRM also recommended that the matter should be referred to NAV 44 and the work programme of the Sub-Committee be amended accordingly.

In view of CIRM's comments, MSC 69 decided not to approve the draft new Performance Standards for Marine Electromagnetic Compasses and, instead, instructed NAV 44 to consider document MSC 69/5/4, review, as necessary, the draft performance standards and also consider whether separate performance standards for Transmitting Magnetic Compasses were necessary.

7.31 The Sub-Committee considered the CIRM proposal (MSC 69/5/4) and was of the opinion that a single performance standard could be prepared including all types of Transmitting Magnetic Heading Devices and agreed the draft performance standards for adoption by the Committee.

However, the Sub-Committee was of the opinion that further study is required on the user requirements for heading systems and invited the Committee to include in its work programme a new item dealing with the matter with one session needed.

Adoption of performance standards

7.32 Taking into account the above decisions, the Sub-Committee prepared the draft MSC resolution on adoption of new and amended performance standards to which the following new and amended recommended performance standards are attached:

.1 Integrated Navigation Systems (INS); (new)

.2 Sound Reception Systems; (new)

.3 Marine Transmitting Magnetic Heading Devices (TMHD); (new) and

.4 Electronic Chart Display and Information Systems (ECDIS) (amendment to resolution A.817(19) - Performance Standards for (ECDIS), as amended).

7.33 The Committee was invited to adopt the draft MSC resolution on new and amended performance standards, given in annex 17, in accordance with resolution A.825(19) and bring it to the attention of Governments, manufacturers, shipowners and others concerned for implementation.

Technical Working Group

7.34 The Sub-Committee instructed the Technical Working Group to consider a number of other documents submitted under item 7. The outcome of the Working Group's discussions related to these documents concerning the development of performance standards for night vision equipment for High-Speed Craft and daylight signalling lamps and not included in this report would be circulated under the appropriate agenda item to the Sub-Committee's forty-fifth session.

7.35 Members were invited to consider the report of the Group, when circulated, and submit comments and proposals thereon for consideration by the Sub-Committee.

8 ITU MATTERS, INCLUDING RADIOCOMMUNICATIONS ITU-R STUDY GROUP 8 MATTERS

8.1 The Sub-Committee noted that the ITU-R Study Group has amended the question (Q.216/8) concerning the technical compatibility of radionavigation systems and radiolocation systems. The study now concerns the band 2.9-3.3 GHz which includes the maritime radionavigation band 2.9-3.1 GHz which is widely used by ship radars.

8.2 The Sub-Committee also noted that, since NAV 43, the WRC-97 amended Appendix S3 of the Radio Regulations to include limits for spurious emissions based upon the Category A limits of ITU-Recommendation SM.329-7. This Recommendation includes limits for maritime mobile radars, which will come into force from 1 January 2003.

ITU-Recommendation SM.329-7, also has Category B limits for spurious emissions. These are applicable to Administrations who require more severe limits, but are not part of the Radio Regulations.

It was noted that in Europe the CEPT has now developed a draft Recommendation on spurious emissions for application to CEPT members. (CEPT/ERC/RECOMMENDATION 74-01 E) which applies the more severe limits to maritime VTS radars.

In most cases VTS radars (fixed radar by definition) are maritime mobile radars, adapted as appropriate to the VTS environment. It is therefore illogical that maritime mobile radars, used for safety purposes, meeting the Category A limits, when used in a VTS should be required to meet the Category B limits.

8.3 Member Governments were invited to inform CEPT(ERO) through their appropriate Authorities of the above concerns and seek exclusion of VTS radars from the proposed ERO Recommendation (Annex 5 - fixed radars) noting that the final date for comments to ERO is 17 August 1998.

8.4 The Sub-Committee prepared a liaison statement to the ITU-R Working Party 8B, given in annex 18. The Sub-Committee instructed the Secretariat to convey annex 4 to the ITU-R Working Party 8B for consideration. The Committee was invited to endorse the action taken.

8.5 The Sub-Committee instructed the Secretariat to convey this part of the report and relevant information to the CEPT Secretariat. The Committee was invited to endorse this action.

9 OPERATIONAL ASPECTS OF WING-IN-GROUND (WIG) CRAFT - POSSIBLE AMENDMENTS TO COLREGs

9.1 The Sub-Committee recalled that at its forty-second session it had considered the operational aspects of WIG craft in relation to the 1972 COLREGS and the information contained in a video on WIG craft and additional information provided by experts from the Russian Federation.

9.2 The Sub-Committee further recalled that at its forty-third session it had recognized the need for possible amendments to COLREGs and agreed to consider the matter further at NAV 44. Members were invited to submit their comments and proposals on this matter to NAV 44.

9.3 The Sub-Committee considered the proposal by the Russian Federation (NAV 44/9) on possible amendments to COLREGs relating to operational aspects of wing-in-ground (WIG) craft and prepared a preliminary draft for amendments to the COLREGs, given at annex 19.

9.4 The Sub-Committee was of the opinion that this matter should be further considered in connection with proposed amendments to the COLREGs for high-speed craft and will reconsider it at the next session of the Sub-Committee under the agenda item on Amendments to the COLREGs. The Committee was invited to agree to this proposed course of action and delete "Operational aspects of wing-in-ground (WIG) craft: Possible amendments to COLREGs" from the Sub-Committee's work programme.

10 REVISION OF THE HSC CODE

10.1 The Sub-Committee recalled that at its forty-third session it invited Members to submit comments and proposals relating to topics entrusted to the NAV Sub-Committee regarding revision of the high-speed craft (HSC) Code, as outlined in DE 40/12/Add.1, annex 11, page 7, for consideration at NAV 44.

10.2 The Sub-Committee also noted the outcome of the Working Group at DE 41 (DE 41/WP.5, annex 2) which proposed a number of amendments to Chapter 13 of the HSC Code relating to navigational equipment.

10.3 The Sub-Committee considered the outcome of the Working Group convened at DE 41 (DE 41/WP.5, annex 2) and proposals by Germany (NAV 44/10) and the United Kingdom (NAV 44/10/1) and agreed the amendments to chapter 13 of the High-Speed Craft Code given in annex 20 which it instructed the Secretariat to bring to the attention of DE 42.

10.4 The Sub-Committee, having noted further proposals by Germany (NAV 44/10) and the United Kingdom (NAV 44/10/1), agreed that it was premature to embark on a comprehensive review of chapter 13 of the HSC Code before finalization of relevant regulations in the draft revised chapter V. However, the Sub-Committee agreed that such a comprehensive review would be necessary and invited the Committee to include in its work programme a new low priority item on "Comprehensive review of chapter 13 of the HSC Code" with two sessions needed for completion, and to delete the item "Revision of the High-Speed Craft Code".

11 ELECTION OF CHAIRMAN AND VICE-CHAIRMAN FOR 1999

In accordance with rule 16 of the Rules of the Procedure of the Maritime Safety Committee, the Sub-Committee unanimously re-elected Mr. K. Polderman (The Netherlands) as Chairman and Dr. V.I. Peresypkin (Russian Federation) as Vice-Chairman for 1999.

12 WORK PROGRAMME

12.1 The Sub-Committee noted the information provided by the United Kingdom on the outcome of an investigation carried out by the United Kingdom Marine Accident Investigation Branch (MAIB) where the primary cause of a number of accidents had been the officer of the watch falling asleep. In spite of the strict conditions prescribed in the STCW Code Section (A-VIII/2.15) allowing the officer in charge of a navigational watch to be the sole lookout in daylight, these accidents were occurring with more frequency and on larger vessels. An analysis by the United Kingdom had confirmed that although most of these accidents occurred at night when sole watchkeeping is not permitted, there was clear evidence that fatigue

could be a problem for solo watchkeepers during daylight hours. The United Kingdom believed that watch alarms significantly enhance navigational safety, and invited the Sub-Committee to consider recommending to the Committee to add the development of a performance standard for watch alarm systems to the Sub-Committee's Work programme.

12.2 The Sub-Committee invited the United Kingdom to submit a proposal to MSC 70 to include the item in the Sub-Committee's work programme and invite the Committee to authorize NAV 45 to consider the document NAV 44/13/1, if deemed appropriate.

12.3 Taking into account the progress made during the session and the instructions of the Committee, the Sub-Committee reviewed its work programme, as approved by MSC 69, and prepared the draft revised work programme, given in annex 25, for consideration and approval by the Committee. With regard to those low priority items not included in the agenda of NAV 45, instead of target completion dates, the number of sessions necessary to complete the work once the task has commenced, have been inserted.

12.4 The Sub-Committee recommended deletion from its work programme of the following items:

H.4 "Development of measures complementary to the INF Code" (see paragraph 6.5);

H.5 "Revision of the HSC Code", as the task has been completed;

L.1 "Electronic chart display and information systems", as the task has been completed;

L.1.1 "Development of new performance standards for electromagnetic compasses", as the task has been completed;

L.1.2 "New performance standards for INS", as the task has been completed;

L.1.4 "Performance standards for sound-reception systems", as the task has been completed;

L.2 "Operational aspects of wing-in-ground (WIG) craft" (see paragraph 9.4); and

L.5 "Use and application of on-board computers", as the task has been completed.

12.5 The Committee was invited to extend the target completion date in the Sub-Committee's work programme of items:

H.1 "Revision of SOLAS chapter V" to 1999 (see paragraph 5.38); and

L.2 (re-numbered) "Safety of passenger submersible craft" to 1999 (see paragraph 13.6).

12.6 The Sub-Committee, taking into account the Sub-Committee agenda management procedure, developed the proposed agenda for NAV 45, given in annex 26, which the Committee is invited to approve.

12.7 The Sub-Committee included in the proposed agenda for NAV 45 the following items of the Sub-Committee's work programme, as it has to provide input to the co-ordinating or co-operating Sub-Committee. Any additional items MSC 70 instructs the Sub-Committee to consider at NAV 45 could be considered under the agenda item "Any other business".

H.7 "Training and certification of maritime pilots and revision of resolution A.485(XII)" (co-ordinated by STW)"; and

L.2 "Safety of passenger submersible craft" (co-ordinated by DE).

12.8 The Sub-Committee, considering the heavy workload envisaged at NAV 45, invited the Committee to postpone further consideration of "Development of a code on polar navigation (co-ordinated by DE)" by the Sub-Committee to NAV 46.

12.9 In addition, the Committee is requested to include the following items in the Sub-Committee's work programme:

H.8 "Review of performance standards for shipborne satellite radionavigational receivers (paragraph 7.12);

L.4 IBS operational aspects (paragraph 7.26);

L.5 User requirements for heading systems (paragraph 7.31); and

L.6 Comprehensive review of chapter 13 of the HSC Code (paragraph 10.4).

13 ANY OTHER BUSINESS

Guidelines for the on-board use and application of computers

13.1 The Sub-Committee noted that DE 41 had invited Norway and IACS to incorporate the recommendations of the SLF Sub-Committee (SLF 40/20, paragraphs 11.7 to 11.11) into the draft guidelines submitted in DE 41/9, as appropriate, and submit the text so modified to NAV 44 for further consideration and referral to the Committee for approval.

13.2 The Sub-Committee considered NAV 44/13 (Norway and IACS) concerning guidelines for the on-board use and application of computers, which is an amended version of the annex to DE 41/9 incorporating the recommendations of the SLF Sub-Committee. The Sub-Committee considered the proposed guidelines to be useful but noted that in the case of navigation and communication equipment the Organization had adopted many Performance Standards which contain specific requirements. The Sub-Committee therefore expanded the text to add a reference to Performance Standards noting that these take precedence over Guidelines. With this change the Sub-Committee prepared the text, given in annex 21, as a draft MSC circular on Guidelines for the on-board use and application of computers, for submission to the Committee for approval.

Draft MSC circular on Alerting of Search and Rescue Authorities

13.3 The Sub-Committee noted that COMSAR 3, noting information provided by the United Kingdom (COMSAR 3/9/19) on a series of search and rescue awareness seminars it runs for masters, mates and key shore-based personnel who may become involved in an emergency at sea to train them in SAR procedures and encourage them, where possible, to give early notification of the situation, approved a draft MSC circular (COMSAR 3/14/Add.1, annex 19) on Alerting of Search and Rescue Authorities and invited MSC 70 to adopt it for circulation to Member Governments. COMSAR 3 instructed the Secretariat to bring the draft MSC circular to the attention of NAV 44 for comments and submission to MSC 70. MSC 69 endorsed this action.

13.4 The Sub-Committee considered the draft MSC circular on Alerting of Search and Rescue Authorities (COMSAR 3/14/Add.1, annex 19) and agreed the draft text given in annex 22 for approval by MSC 70.

Safety of passenger submersible craft

13.5 The Sub-Committee recalled that at its forty-second session following a submission by France (NAV 42/19) it prepared an SN circular, which was approved by MSC 67 as SN/Circ.188 on Regulations applicable to all civilian submarines or submersible craft in waters under French jurisdiction, requesting Member Governments to disseminate the information to ship owners and others concerned.

13.6 The Sub-Committee decided to defer consideration of sections 2.4.5 and 2.4.6 of the draft guidelines (DE 40/11/4, annex), referred to it by DE 41, until NAV 45 and invited the Committee to extend the target completion date of safety of passenger submersible craft to 1999.

Operational requirements of pilotage issues

STW issues

13.7 The Sub-Committee noted that STW 29 had instructed the Secretariat to convey the relevant parts of its report, the proposed draft Recommendations on training and certification requirements for maritime pilots other than deep sea pilots, the United States proposals for guidance (STW 29/7/1), IMPA's submission to the Committee (MSC 69/20/2) and INTERTANKO's submission (STW 29/7/5) to the NAV Sub-Committee for consideration of the operational requirements.

13.8 The Sub-Committee further noted that MSC 69 had endorsed STW 29's instruction to the Secretariat for consideration of pilot training issues and decided to include a high priority item on "Training and certification of maritime pilots and revision of resolution A.485(XII) (co-ordinated by STW)" in the STW Sub-Committee's work programme and agreed to the same with respect to the NAV Sub-Committee's work programme, with one session needed to complete the item.

13.9 The Sub-Committee deferred consideration of the proposals of the United States (STW 29/7/1), IMPA(MSC 69/20/2) and INTERTANKO (STW 29/7/5) until NAV 45 and invited Members to submit comments and proposals for consideration at that session.

Pilot transfer arrangements issues

13.10 The Sub-Committee recalled that at its forty-third session, it considered a proposal by Germany (NAV 43/5/4) to amend regulation 29 and transfer the technical requirements to a revision of resolution A.667(19) - Recommendation on pilot transfer arrangements. NAV 43 recalled that regulation 29 was existing regulation V/17, without change, which was adopted by resolution MSC.22/59 on 23 May 1991 and was complemented by resolution A.667(16) to which most of the technical requirements of the old regulation 17 had been transferred. The observer of IMPA expressed concern at again amending draft regulation 29 as it was a compromise and, at the time the amendment was considered in the Sub-Committee, IMPA had wished to retain all the technical requirements in the old regulation 17; NAV 43 agreed to retain regulation 29.

13.11 The Sub-Committee further recalled that at its forty-third session, it agreed to a proposal by Germany at least to amalgamate the technical requirements and standards for pilot transfer arrangements contained in resolution A.275(VIII), A.426(XI) and A.667(16), in order to clarify existing inconsistencies and duplications; as an amalgamation of the resolutions would also simplify their updating.

13.12 The Sub-Committee, having considered proposals by Germany (NAV 44/5/3) and IMPA (NAV 44/5/4) agreed the draft Assembly resolution on Pilot transfer arrangements given in annex 23 and invited the Committee to approve it for submission to the twenty-first Assembly for adoption. The Sub-Committee did not agree with a proposal by Italy (NAV 44/5/2) for a new type of pilot ladder steps to be included in the requirements in the aforementioned draft Assembly resolution.

13.13 Italy then requested an MSC circular providing for the conduct of trials concerning the new design of pilot ladder, that would demonstrate the enhancement of safety for the pilot while embarking or disembarking a ship to be developed. This request did not receive any support.

Development of a code on polar navigation

13.14 The Sub-Committee noted that MSC 68 had agreed:

.1 to include in the work programmes of the BLG, FP, COMSAR, NAV, SLF and STW Sub-Committees a new low priority item on "Development of a code on polar navigation", with two sessions needed to complete the item; and

.2 that this item should be included in the provisional agendas of the aforementioned Sub-Committees' first session following preparation of the draft Polar code by the DE Sub-Committee.

Further, MSC 68 decided not to proceed with making the code mandatory at this stage.

13.15 The Sub-Committee noted that MSC 69, at the request of DE 41 instructed NAV 44 to preliminary discuss the issue under its agenda item on "Any other business" and include the item on "Development of a code on polar navigation" in the provisional agenda for NAV 45.

13.16 The Sub-Committee considered DE 41/WP.7, annex 1 and gave preliminary consideration to the development of a code on polar navigation with special reference to Chapter 12 (Navigational Equipment), Chapter 14 (Operational Standards) and one paragraph (13.4 on sound signalling apparatus of Chapter 13 (Communications) and was of the opinion that more work was needed and that further consideration should take place at NAV 46. Members were invited to submit comments and proposals for consideration at NAV 46 (see paragraph 12.8).

13.17 The observer from IHO stated that the brief mention in the Preamble to the Code concerning the risks inherent in polar navigation, among them the "relative lack of good charts" had been noted by IHO. IHO also noted the references in Chapter 12 to Electronic Chart Systems, in Chapter 14 to Operating and Training Manuals and in Chapter 15 to Navigation Training. In the opinion of IHO the brief reference in the Preamble did not properly reflect the real limitations imposed on polar operations by the lack of adequate charts. Whilst many Member States of the IHO have active hydrographic survey programmes in polar regions, it remains the case that many areas are unsurveyed, or inadequately surveyed, with consequent risks to ships which enter these areas. Reports of groundings in polar waters are received fairly frequently, particularly for cruise ships. These reports tend to support the view that in a significant number of cases the charts are not, in the words of SOLAS Regulation V/20, "adequate .... for the intended voyage".

ICS Bridge Procedures Guide - 3rd Edition

13.18 The Sub-Committee noted with appreciation the information provided by ICS (NAV 44/INF.6) that the new third edition of the ICS Bridge Procedures Guide had recently been published. The Guide is divided into three parts, the first providing guidance to masters and navigating officers, and the second and third parts incorporating bridge and emergency checklists. The section of the Guide dealing with passage planning had been expanded to cover different phases of a voyage including when a pilot is on board. Master pilot information exchange forms are contained as annexes to the Guide. Guidance is also included on the use of integrated navigation systems including electronic charts; sections on GMDSS radiocommunications are also new to the Guide.

UK Safe Seas Guide

13.19 The Sub-Committee noted the information provided by the United Kingdom (NAV 44/INF.7) on the UK Safe Seas Guide which had been produced in response to Recommendation 50 of Lord Donaldson's report: Safer Ships, Cleaner Seas, and aimed at raising awareness about the importance of safe navigation and pollution prevention in United Kingdom waters. Specifically, the Guide includes key navigation advice, warnings to prevent pollution, what to do in an emergency, and contact details* for further information.

IHO efforts in technical co-operation

13.20 The Sub-Committee noted that the Technical Co-operation Committee, at its forty-fifth session (17 to 18 June 1998), having considered a proposal by the International Hydrographic Organization (IHO) (TC 45/8/1) for IMO and IHO to jointly submit a proposed draft resolution on Hydrographic services to the General Assembly of the United Nations for adoption this year, the Year of the Ocean, agreed in principle to the proposal and, realizing MSC's competence on the issue, further agreed that NAV 44 be invited to consider the proposed text from a safety of navigation point of view and that the text, amended as appropriate, be thereafter submitted to the United Nations, as the timing of MSC 70 would not allow for it to be considered by the Committee before submission to the United Nations.

13.21 The Sub-Committee considered the draft United Nations General Assembly resolution on Hydrographic services (NAV 44/2/3, annex) and agreed the text given in annex 24 for submission to the United Nations. The Committee was invited to endorse this action.

Casualty statistics and investigations

13.22 As requested by FSI 6 (FSI 6/12, paragraphs 6.14 to 6.15), the Sub-Committee reviewed the document by Australia (FSI 6/6/4) on problem of ships navigating without proper charts in breach of SOLAS regulation V/20 with a view to possibly developing an MSC circular, drawing the attention of Member Governments to the problem, for submission to MSC 70 for approval.

13.23 The Sub-Committee, while sharing the concerns expressed by Australia, but, considering that the requirement to carry up-to-date charts, sailing directions, lists of lights, notices to mariners, tide tables and all other nautical publications necessary for the intended voyage was mandatory for all ships under SOLAS regulation V/20, was of the opinion that it was unnecessary to develop an MSC circular.

Date of the forty-fifth session

13.24 The Sub-Committee noted that its forty-fifth session was tentatively scheduled to be held from 20 to 24 September 1999.

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Expressions of condolence

13.25 The Sub-Committee, noting with deep regret the sudden death of Captain A. Baranov (Russian Federation) who had been a very active and important participant in the meetings of IMO, requested the Russian Federation delegation to convey to the family of Captain Baranov its deepest sympathy and sincere condolences.

Expressions of appreciation

13.26 The Sub-Committee expressed its appreciation to the following delegates, who had recently relinquished their duties, or were transferred to other duties, for their invaluable contribution to its work and wished them every success in their new duties.

- Mr. Zhi Guanglu (China) (returning home);
- Mr. Kong-Gyun, Oh (Republic of Korea) (returning home); and
- Mr. Gap-Sook, Lee (Republic of Korea) (returning home).

14 ACTION REQUESTED OF THE COMMITTEE

14.1 The Committee, at its seventieth session, is invited to:

.1 adopt the proposed "Area to be avoided" around the F3 station (paragraph 3.5 and annex 2)[*];

.2 note the preliminary draft of parts of a new report covering all aspects of safety and environmental protection, including the review of the IMO Rules and Recommendations on Navigation through the Strait of Istanbul, the Strait of Çanakkale and the Marmara Sea (paragraph 3.12 and annex 5);

.3 consider the Sub-Committee's strong recommendation that a working group on ships' routeing be convened during the session and decide as appropriate (paragraph 3.15);

.4 adopt the proposed amendments to section 6 "Design Criteria" of resolution A.572(14), as amended (paragraph 3.18 and annex 6);

.5 adopt, in accordance with resolution A.858(20), the proposed mandatory ship reporting systems "Off the northeastern and the southeastern coasts of the United States" and "In the Strait of Dover/Pas-de-Calais" (paragraph 3.33 and annex 10);

.6 approve the draft SN circular on Guidance for ships transiting through archipelagic waters (paragraph 3.34 and annex 11);

.7 authorize the Sub-Committee to consider the issue of conflicting actions in collision avoidance along the proposed terms of reference (paragraph 4.5 and annex 12);

.8 consider the Sub-Committee's recommendation that the North Atlantic Ice Patrol should be continued (under the management of the United States) and that the Committee should establish the terms, conditions and the legal framework under which the service should be

[*]References are to paragraphs and annexes of the report of NAV 44 (NAV 44/14).

operated and financed, including consideration of the proposed draft text of regulation 6 - Ice patrol service, management and cost recovery (paragraphs 5.14 to 5.19 and annex 13);

.9 authorize NAV 45 to submit the draft Assembly resolution and guidelines on voyage planning directly to the twenty-first Assembly for adoption (paragraph 6.6);

.10 approve the draft SN circular on Differences between RCDS and ECDIS (paragraph 7.21 and annex 16);

.11 adopt in accordance with resolution A.825(19), the proposed draft MSC resolution on new and amended performance standards (paragraph 7.33 and annex 17);

.12 endorse the action of the Sub-Committee in submitting a liaison statement to the ITU-R Working Party 8B (paragraph 8.4 and annex 18);

.13 endorse the action of the Sub-Committee in instructing the Secretariat to convey part 8 of its report and relevant information to the CEPT Secretariat (paragraph 8.5);

.14 approve the draft MSC circular on Guidelines for the on-board use and application of computers (paragraph 13.2 and annex 21);

.15 approve the draft MSC circular on Alerting of search and rescue authorities (paragraph 13.4 and annex 22);

.16 approve the draft Assembly resolution on Pilot transfer arrangements, for submission to the twenty-first Assembly for adoption (paragraph 13.12 and annex 23);

.17 endorse the action of the Sub-Committee in submitting, on behalf of the Organization and in conjunction with IHO, a draft resolution on Hydrographic services to the General Assembly of the United Nations (paragraph 13.20 and annex 24); and

.18 approve the report in general.

14.2 In reviewing the work programme of the Sub-Committee, the Committee is invited to consider the revised work programme suggested by the Sub-Committee (annex 25) in general and, in particular, to:

.1 extend the target completion date of "Revision of SOLAS chapter V" to 1999 (paragraph 5.38);

.2 agree that voyage planning should be considered at NAV 45 under "Routeing of ships, ship reporting and related matters" and delete "Development of measures complementary to the INF Code" (paragraph 6.5);

.3 include a high-priority item "Review of performance standards for shipborne satellite radionavigational receivers" with a target completion date of 2000 (paragraph 7.12);

.4 include a low-priority item on "IBS operational aspects" with two sessions needed for completion (paragraph 7.26);

.5 include a low-priority item on "User requirements for heading systems" with one session needed for completion (paragraph 7.31);

.6 agree that "Operational aspects of wing-in-ground (WIG) craft: possible amendments to COLREGs" should be considered at NAV 45 under "Amendments to the COLREGs" and delete "Operational aspects of wing-in-ground (WIG) craft: possible amendments to COLREGs" (paragraph 9.4);

.7 include "Comprehensive review of chapter 13 of the HSC Code" with two sessions needed for completion (paragraph 10.4);

.8 delete "Revision of the HSC Code", as the task has been completed;

.9 delete "Operational aspects of wing-in-ground (WIG) craft", as the Sub-Committee decided that it will consider the issue at NAV 45 under the agenda item on Amendments to the COLREGs;

.10 agree that further consideration by the Sub-Committee on "Development of a code on polar navigation" would take place at NAV 46 (paragraph 12.8);

.11 delete "Use and application of on-board computers (co-ordinated by DE)", as the task has been completed;

.12 extend the target completion date of "safety of passenger submersible craft (co-ordinated by DE) to 1999;

.13 delete "Electronic chart display and information systems", as the task has been completed;

.14 delete "Development of new performance standards for electromagnetic compasses" as the task has been completed;

.15 delete "New performance standards for INS", as the task has been completed; and

.16 delete "Performance standards for sound-reception systems", as the task has been completed.

14.3 The Committee is also invited to approve the proposed agenda for the Sub-Committee forty-fifth session (annex 26) which has been developed using the agenda management procedure.

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ANNEX 1

AGENDA FOR THE FORTY-FOURTH SESSION INCLUDING A LIST OF DOCUMENTS

1 Adoption of the agenda

NAV 44/1	Secretariat
NAV 44/l/l	Secretariat

2 Decisions of other IMO bodies

NAV 44/2	Secretariat
NAV 44/2/Add.1	Secretariat
NAV 44/2/1	Secretariat
NAV 44/2/2 and Corr.1	Secretariat
NAV 44/2/3	Secretariat
NAV 44/2/4	Secretariat

3 Routeing of ships, ship reporting and related matters

NAV 44/3	Peru
NAV 44/3/1	United States
NAV 44/3/2	France and the United Kingdom
NAV 44/3/3	United Kingdom
NAV 44/3/4	ICS
MSC 69/5/9	SIGTTO and INTERTANKO
NAV 44/INF.4	United States

4 Amendments to COLREGs

NAV 44/4	United Kingdom
NAV 44/4/1	FOEI
MSC 69/20/4	Japan
MSC 69/20/11	Netherlands, IAIN and IFSMA

5 Revision of SOLAS chapter V

NAV 44/5	Chairman of the Drafting Group
NAV 44/5/1	IACS
NAV 44/5/2	Italy
NAV 44/5/3	Germany
NAV 44/5/4	IMPA
NAV 44/5/5	FOEI
NAV 44/5/6	United States
NAV 44/5/7	CIRM

NAV 44/5/8 + Corr.1 (English only)	United States
NAV 44/5/9	United Kingdom
NAV 44/5/10	Italy
NAV 44/5/11	Russian Federation
NAV 44/5/12	United Kingdom
NAV 44/5/13	Germany
NAV 44/5/14	Japan
NAV 44/5/15	Japan
NAV 44/5/16	Japan
NAV 43/5	Netherlands and Germany
NAV 43/5/2	United States
NAV 43/5/3	Russian Federation
NAV 43/5/5	Sweden
NAV 43/5/7	Greece
NAV 43/5/8	Japan
NAV 43/7/17	IHO

6 Development of measures complementary to the INF Code

NAV 44/6	FOEI
NAV 44/INF.5	Australia

7 Navigational aids and related matters

NAV 44/7	Technical Working Group
NAV 44/7/1	Germany
NAV 44/7/2	Germany
NAV 44/7/3	IEC
NAV 44/7/4	Chairman of IMO/IHO HGE
NAV 44/7/5	United Kingdom
NAV 44/7/6	Australia, France, Ireland, Singapore, United Kingdom and the United States
NAV 44/7/7	United Kingdom
NAV 44/7/8	IHO
NAV 44/7/8/Add.1	IHO
NAV 44/7/8/Add.2	IHO
NAV 44/7/9	United Kingdom
NAV 44/7/10	Russian Federation
NAV 44/7/11	Russian Federation
NAV 44/7/12	Norway
NAV 44/7/13	Norway
NAV 44/7/14	Norway
NAV 44/7/15	Norway
NAV 44/7/16	Norway

NAV 44/7/17	Norway
NAV 44/INF.2	Brazil
NAV 44/INF.3	Finland
NAV 44/INF.8	United Kingdom
NAV 44/INF.9	IEC
NAV 44/INF.10	Australia
NAV 44/INF.11	United States
MSC 69/INF. 4/Add.1	The Netherlands
MSC 69/INF. 7	Denmark
MSC 69/INF. 13	Sweden
MSC 69/5/4	CIRM

8 ITU matters, including Radiocommunication ITU-R Study Group 8 matters

[No documents submitted]

9 Operational aspects of wing-in-ground (WIG) craft - Possible amendments to COLREGs

NAV 44/9	Russian Federation

10 Revision of the HSC Code

NAV 44/10	Germany
NAV 44/10/1	United Kingdom

11 Election of Chairman and Vice-Chairman for 1999

[No documents submitted]

12 Work programme

[No documents submitted]

13 Any other business

NAV 44/13	IACS
NAV 44/13/1*	United Kingdom
NAV 44/INF.6	ICS
NAV 44/INF.7	United Kingdom
COMSAR 3/14/Add.1	
DE 40/11/4	Russian Federation
STW 29/7/1	United States
STW 29/7/5	INTERTANKO
MSC 69/20/2	IMPA
DE 41/WP.7	
FSI 6/6/4	Australia

*Considered under agenda item 12

14 Report to the Maritime Safety Committee

NAV 44/WP.7	Draft report
NAV 44/INF.1	List of participants

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ANNEX 2

ROUTEING MEASURES OTHER THAN TRAFFIC SEPARATION SCHEMES

AREA TO BE AVOIDED AROUND THE F3 STATION

Reference chart: BA 2449, 1998 edition.

Note: This chart is based on European Datum (1950).

Description of the area to be avoided

The F3 station is an area of heavy crossing traffic with some 11,000 crossing movements per annum and has suffered collision damage seven times over the past ten years. Therefore, with the aim of preventing further damage, it has been decided to establish an "Area to be avoided" centred on the F3 station.

The area to be avoided is centred on the following geographical position:

(1) Latitude 51° 23'.90 N (2) Longitude 002° 00'.59 E
with a radius of 500 metres.

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ANNEX 3

STATEMENT BY THE DELEGATION OF TURKEY

My delegation would like to reiterate its deep concern about the risks associated with heavy vessel traffic through the Turkish Straits. It is the unique characteristics of the Turkish Straits with their geographical and morphological conditions which set them apart from other Straits of the world in terms of the density of vessel traffic and navigational hazards as well as the economic, ecological and cultural significance of the area.

The volume of traffic in the Straits is enormous. In 1997 50,942 vessels passed through the Straits of Istanbul in addition to the heavy local traffic. The number of ships passing through the Straits on average exceeds 150 vessels per day. Around 5,000 tankers transporting oil or LPG pass through the Straits yearly carrying over 40 million tons of oil and oil products. With the rapidly increasing number of oil tankers, gas ships, especially large LNG ships passing through the Straits, safety of navigation becomes all the more important. Since 1948, 403 major accidents have been recorded in the Strait of Istanbul. Three quarters of those accidents have been collisions providing clear evidence that the density of traffic in the Straits presents a serious risk.

The volume of traffic continues to increase. It is expected to increase 40-50% as a result of additional traffic coming from the Main-Danube, Volga-Baltic and Don waterways as well as because of the growing needs of the Black Sea basin and the Greater Caspian Region for western goods and equipment.

The Straits of Istanbul is unique ecologically, as it serves as the genetic bridge between the Black Sea and the Mediterranean. The Turkish Straits also represent a migratory route for a number of fish species, including commercially important fish stocks. These fish stocks have suffered dramatically over the past decade. A single spill in the wrong place could have devastating effects on these already stressed stocks with grave ecological and economic consequences. It would seriously jeopardize the health, welfare and economics of that population, let alone a major disaster, which could lead to immense loss of life and property.

Oil spills resulting from dense maritime traffic and/or from accidents, collisions or grounding have already caused damage to the marine environment in the Turkish Straits. Efforts to control the damage have not always proved effective. It should be kept in mind that when the damage was done to the marine environment in various parts of the world, be it Alaska, the Channel or the Strait of Istanbul, damage control has taken many years.

The cultural values of Istanbul is another important aspect. Istanbul is a city with 3,000 years of history. Its architecture, monuments and cultural amenities have won its recognition as a "World Heritage City" by UNESCO. A major spill could adversely affect these invaluable properties. In addition, tourism is a major industry which could also be severely damaged by a major accident.

The increasing vessel traffic and navigation hazards existing in the Turkish Straits represent a significant risk to important economic, ecological values as well as to the safety of the people.

The city of Istanbul has changed dramatically in terms of size, population and economic welfare over the last fifty years. In the late 1930s Istanbul was under half a million people. Today it is a thriving giant metropolis of 10 to 12 million with an economy of its own very much larger than many European countries.

Concern for the environment is growing stronger among the Turkish public in particular as a result of the effects of urbanization and rapid demographic growth, and especially because of the growing risks associated with dense maritime traffic in the Turkish Straits. It therefore becomes important to demonstrate to the Turkish public that the Straits can be relied on to operate in a safe and environmentally friendly fashion. A serious collision i.e. between an oil tanker and a high-speed passenger bus, would change public attitude dramatically.

The people of Istanbul have also expressed concern over the passage of huge vessels and fast sea buses which are creating high waves and causing damage to centuries old wooden mansions, Ottoman palaces and other cultural properties and monuments on the Bosphorus. We do not know what technology may do to shipping in the years to come but we should nevertheless be prepared to address the new challenges to the environment and safety of navigation in the most efficient manner.

In fact, the Turkish public has every right to be concerned about the growing maritime traffic and the dramatic change in the cargo carried through the Strait. In the 1930s and 1940s most of the vessels which travelled the Strait carried grain, agricultural products and various dry cargo. The situation today is quite different. Much of the cargo is now oil, gas, LNG and other dangerous and noxious goods. Accidents have therefore increased and become more lethal.

One of the most famous shipping disasters in the history of the Turkish Straits came in early 1979 when a tanker, the **Independenza**, hit a freighter in the Strait of Istanbul. There was a massive explosion which terrified the residents of Istanbul. The oil spill eventually travelled down through the Straits of Istanbul to the Sea of Marmara and from there through the Strait of Canakkale and into the Aegean, showing that an environmental disaster in Istanbul would have an impact on the region as a whole including neighbouring countries.

Another major accident occurred in March 1994 when the **Nassia**, an oil tanker with a cargo of 19 million gallons of crude oil from Novorosyissk, hit an empty cargo ship, the **Sea-Broker**, at the northern entrance to the Strait of Istanbul. Three of the **Nassia's** ten tanks were broken and it drifted out of control and blazing for almost seven days.

These accidents clearly shown that human error or mechanical failures could inflict a catastrophe on the Straits and the City. The population also point out that not only Istanbul would suffer, so too would the user countries which might find themselves unable to pass for a period much longer than the week's delay created by the **Nassia** collision.

There have been a number of collisions and other accidents in the Turkish Straits in the last eight months as a result of mainly human error and sudden changes in the morphological conditions. Perhaps the most serious of these was the grounding of the Norwegian tanker **Orange Star** on 17 December last year near a heavily populated are of the city. It was carrying 30,500 tons of gas oil. Although this accident was a "near miss situation", it had potentially catastrophic implications. The Greek bulker, **Marianna**, travelling through the Straits on 10 June 1998 caught fire which was eventually extinguished after the intervention of three fire fighting and two coastguard vessels once the tanker had been towed out to the Sea of Marmara. The **Seasalvia**, a Maltese flagged tanker loaded with 81,000 tons of crude oil ran aground in the Straits on 10 July 1998. This again caused partial closure of both the waterway and the port of Istanbul to traffic.

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ANNEX 4

STATEMENT BY THE DELEGATION OF THE RUSSIAN FEDERATION

We are grateful to the delegation of Turkey for the oral information on the situation in the Black Sea Straits. It ought to be noted, though, that similar information has already been several times circulated by Turkey - in the information documents submitted by Turkey to MSC 68 in May 1997 which were taken into consideration by NAV 43 in July 1997, then at a briefing held in Ankara in April 1998, in the information documents presented by Turkey at MSC 69 in May 1998 and at a briefing for other delegations at MSC 69. All these information documents remain on the negotiation table, along with other relevant IMO documents with decisions by MSC in May 1997 and 998, by the Assembly in 1995 and 1997 and by NAV 43 in July 1997.

Our delegation respects the appeal of the Chairman of the Working Group on Routeing Mr. Lameijer not to go into detailed discussion of this question in the Plenary and thus to give more time to the Working Group to discuss the matter. This is why I shall now limit myself to welcoming the statement by Turkey that the co-operation in the matter of Straits should be two-way - not only States-users of the Straits should endeavour to co-operate with Turkey, but Turkey also, on its part, should endeavour to co-operate in a constructive way with States-users of the Straits.

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ANNEX 5

PRELIMINARY DRAFT OF PARTS OF A NEW REPORT COVERING ALL ASPECTS OF SAFETY AND ENVIRONMENTAL PROTECTION, INCLUDING THE REVIEW OF THE IMO RULES AND RECOMMENDATIONS ON NAVIGATION THROUGH THE STRAIT OF ISTANBUL, STRAIT OF ÇANAKKALE AND THE MARMARA SEA

1 [CONDITIONS IN] THE STRAIT OF ISTANBUL, THE STRAIT OF CANAKKALE AND THE SEA OF MARMARA

The Strait of Istanbul, the Strait of Canakkale and the Sea of Marmara ("the Straits") form the only sea trade and voyage route between the Mediterranean Sea and the Black Sea. The total distance to be covered through the Straits is about 160 miles (300 km) which an average vessel takes about 16 hours to navigate.

The Strait of Istanbul is approximately 18 miles (31 km) long with a width varying between 700 and 1500 meters, and is characterized by sharp turns. Ships are bound to alter course in the Strait at least 12 times up to 80 degrees. Thick fog, snow, rain and strong changing surface and deep currents (up to 6-8 knots) also pose hazards to safe navigation. Some ships, due to their length, cannot keep to their lane in some of the narrow bends.

The Strait of Istanbul runs through a city with more than 10 million inhabitants. The shorelines of Istanbul are densely populated. Large vessels, including those carrying dangerous cargo, regularly approach close to these inhabited areas. The city of Istanbul is an ancient city with 3000 years of history and has been declared as a "World Heritage City" by UNESCO. It is an important cultural, tourist and business centre. The Straits have important ecological functions. They represent a migratory route for a number of fish species, including commercially important fish stocks.

The Strait of Canakkale is about 39 miles (70 km) in length, whose width is generally between 1300 and 2000 meters. It has two difficult narrow bends and strong currents and counter-currents (up to 6-7 kts).

[insert footnote: Vessel traffic and accident statistics provided by the Turkish Maritime Authority.]

There are more than 1500 local vessel movements in the Strait of Istanbul daily, in addition to transiting ships, ships calling at the Port of Istanbul, leisure craft and fishing vessels. 1.5 million people daily move by ferry and other shuttle boats along the Strait and across the Strait from one side to the other side of the city of Istanbul.

In 1997, over 50,000 vessels passed through the Strait of Istanbul. This amounts to more than 140 vessels per day. Of these vessels, 35,000 were foreign flag vessels passing through the Strait. However, in 1985, 24,100 vessels passed through the Strait.

5,500 vessels transporting oil or LPG pass through the Straits yearly -- about 15 tankers per day. Over 40 million tons of oil and oil products are transported yearly through these straits. In 1997, 69 foreign warships passed through the Straits.

The combined maritime traffic is now therefore exceptionally dense.

The volume of traffic is expected to continue to increase with additional traffic coming from the Main-Danube, Volga-Baltic and Don waterways, as well as from the rise in foreign trade of the Black Sea and Caspian states.

403 major accidents have occurred in the Strait of Istanbul since 1948. Of these, 292 were collisions, 27 ships crashed into buildings in the residential areas along the Strait of Istanbul, 35 involved groundings, and 6 involved fires.

The annual number of accidents in the Straits has dropped from about 50 per year to about 5 per year since 1994, including 3 in the past six months, two of which were oil tankers.

[The Working Group therefore recognized that the increased volume of maritime traffic in the Straits and changes in the nature of cargo carried and in the size of vessels have increased the risks for the safety of navigation, seafarers, and the local population, and for the marine environment.]

[The Working Group agreed that these risks should be carefully evaluated [during efforts made] [and, in considering the actions necessary] to reduce and control these risks, [and] it should take into account the relevant international instruments [and the principle of freedom of navigation of merchant ships through the Straits].]

2 IMO Rules and Recommendations on Navigation through the Strait of Istanbul, Strait of Çanakkale and the Marmara Sea

[Text to be developed]

3 Ship reporting and navigation information

The Working Group noted MSC 69/INF.28 submitted by Turkey on ship reporting in the Strait of Istanbul, the Strait of Çanakkale and the Marmara Sea, in particular the observation that many ships have not participated in the reporting system (TUBRAP), despite being strongly recommended to do so in SN/Circular 166.

The Working Group recommended to invite the Government of Turkey to submit to the Organization a proposal for mandatory ship reporting system covering the Strait of Çanakkale, the Sea of Marmara and the Strait of Istanbul.

In the opinion of the Greek Delegation such proposed reporting system of a mandatory character is by its very nature inconsistent with the paragraph 3 of the resolution A.827(19), in which it is confirmed that the established - and now under revision - Rules and Recommendations "are not intended in any way to affect or prejudice the rights of any ship using the Straits under International Law" as well as with the paragraphs (i) and (j) of Regulation V/8-1 of the 1974 SOLAS Convention.

4 **Vessel traffic services**

[Text to be developed]

5 **Pilotage**

[Text to be developed]

6 **Ships waiting at the entrances of the Straits for permission to proceed through**

[Text to be developed]

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ANNEX 6

AMENDMENTS TO THE GENERAL PROVISIONS ON SHIPS' ROUTEING
(Resolution A.572(14), as amended)

Amend resolution A.572(14) "General Provisions on Ships' Routeing", as amended, as follows:

Section 6

.1 New paragraph 6.8

"6.8 Traffic separation schemes shall be designed so as to enable ships using them to fully comply at all times with the International Regulations for Preventing, Collisions At Sea, 1972, as amended"; and

.2 Renumber existing paragraphs accordingly.

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ANNEX 7

STATEMENT BY THE DELEGATION OF TURKEY

COLREG 10 was adopted in accordance with Rule 1(d) of the 1972 Convention on the International Regulations for Preventing Collisions at Sea in order to enhance the safety of navigation when COLREG 9 was deemed insufficient to prevent increasing risk of collision in the narrow Straits due to an increase in the maritime traffic and, more importantly, the increase in the size of vessels. This rule has proved its effectiveness by leading to the reduction in the number of collisions and accidents.

In view of the physical limitations and peculiarities of the Turkish Straits, the IMO, when adopting the TSSs in 1994, provided a certain degree of flexibility in the implementation for large vessels which cannot comply with the Traffic Separation Schemes. The IMO Rules and Recommendations made it possible for the Turkish Maritime Authorities to temporarily suspend the TSSs or sections of it and to suspend two-way traffic in order to ensure the safety of navigation and especially the safety of vessels which cannot comply with the TSSs. The Turkish Maritime Authorities have been successfully implementing the TSSs and associated Rules and Regulations.

1997 statistics show that 50,942 ships passed through the Strait of Istanbul of which only 3.7% were not able to comply with the TSSs at some critical bends due to their oversize. In such cases the Turkish Maritime Authorities suspended two-way traffic and regulated one-way traffic in a most efficient manner and in accordance with the IMO rules and recommendations. In other words 96.3% of the vessels which passed through the Straits in 1997 were able to fully comply with the established TSSs.

On the other hand, the argument that COLREG Rule 9 should be implemented in order to reduce risks caused by the crossings of small vessels is not valid since Rule 10(j) of COLREG, is similar to subparagraph (b) of Rule 9 which states that "small vessels shall not impede the safe passage of a vessel within a narrow channel/following a traffic lane".

In such areas as the Turkish Straits, where geographical and oceanographical limitations exist, it may not be possible to delineate TSSs with which all types of ships, including very large vessels, can comply at all times. It is without doubt that TSSs are still strongly needed for the safe passage of vessels and safety of navigation as a whole. This proposed amendment would therefore be neither realistic nor applicable.

We, therefore, strongly object to the amendment proposed by the ICS which in our view is motivated by narrow objectives, and is purely designed to change IMO adopted and successfully implemented TSSs in the Turkish Straits.

We are also of the opinion that the requirements foreseen by the proposal will not be conducive to maritime safety and is not applicable in certain geographical areas. Moreover, the proposed change to Section 6 "designing criteria" of resolution A.572(14) is not compatible with subparagraph (b)(ii) of Rule 10 of COLREG.

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ANNEX 8

SUPPORTING INFORMATION FOR MANDATORY SHIP REPORTING SYSTEMS "OFF THE NORTHEASTERN AND THE SOUTHEASTERN COASTS OF THE UNITED STATES"

1 Objectives

The establishment of two mandatory ship reporting systems, one off the northeastern coast and one off the southeastern coast of the United States, would provide important protection for endangered large whale species, in particular the critically endangered northern right whale. Ship strikes are the species' largest known source of human-related mortality. Since 1991, approximately 50% of the recorded right whale mortalities have been attributed to ship strikes.

Communication between shore-based authorities and ships in these areas would reduce the risk of collision damage to ships and the whales as well as provide beneficial information to ships.

2 Hydrographical and meteorological elements, characteristics of ship traffic, and any environmental aspects of the area

.1 Hydrographical and meteorological elements

.1 Northeastern United States. The hydrographical and meteorological elements existing in the area create conditions favourable to production of right whale food sources and therefore contribute to the presence of right whales in the area. These elements can also adversely affect the ability of mariners to detect whales.

The proposed mandatory ship reporting system covers an area of high ship traffic density and variable weather. The northern part of the system encompasses the approaches to Boston Harbor (the largest seaport in New England), Massachusetts Bay, and Cape Cod Bay. The area is extensively marked with aids to navigation, and Loran C and differential Global Positioning System (GPS) provide excellent coverage. The weather in the area is changeable, with frequent thick fog and strong and variable tides.

The southern part of the ship reporting system is approximately 30 miles southeast of Nantucket Island, Massachusetts, just east of the Nantucket Shoals Area to Be Avoided, and encompasses the western half of the Great South Channel, part of the Boston Harbor Traffic Separation Scheme (TSS) north to Race Point, Cape Cod, Massachusetts. The Great South Channel is bounded to the west by Cape Cod and the Nantucket shoals and to the east by the Georges Bank fishing grounds. Loran C and differential GPS provide excellent coverage. The Boston Harbor TSS is marked by buoys every 15 nm. Fishing is heavy to the east of the TSS. Radar navigation is poor due to the low topography and distances from land. There are few calm days. During certain seasons, and in particular during peak whale season, the weather is usually foggy. Moreover, it is foggy when the sea is calm and when it is clear, the sea is often rough. Also, there is a considerable amount of hazy weather which limits visibility. Heavy storms and rain are common.

.2 Southeastern United States. The hydrological and meteorological elements in coastal waters off Georgia and northeastern Florida provide favourable conditions

for right whale calving. This area is the only known right whale calving grounds. The Georgia coastline, between Savannah River on the north and St. Mary's River on the south, is partly submerged at flood tide, and is broken by tidal rivers and marshes covered with dense grass. Beaches are sandy and flat. The coastline of Florida is a long, low-profile barrier beach where aids to navigation mark all critical dangers. Loran C and differential GPS provide excellent coverage. Radar navigation is of less assistance due to the low topography. The water is generally clear. Severe storms including hurricanes are common. Visibility is generally excellent, with light winds and attendant low sea state. In winter, early morning coastal fog is common, limiting visibility until the fog lifts with the rising sun. Winter storms are common and move quickly through the region.

.2 Characteristics of ship traffic

.1 Northeastern United States. There is a variety of ship traffic operating in the proposed mandatory ship reporting area in the northeastern United States and the amount is relatively high. This includes fishing vessels, recreational vessels, and commercial traffic. Major shipping lanes exist in this area such as the Boston Harbor TSS, the Great South Channel, and the traffic lanes to transit north to the Bay of Fundy, Canada.

.2 Southeastern United States. There is also a variety of ship traffic operating in the area proposed for the mandatory ship reporting system in the southeastern United States such as fishing vessels, military vessels, and commercial traffic. Shipping lanes cross the area and include those into the several area ports.

.3 Environmental characteristics

.1 Right whales aggregate to feed or calve in five seasonal habitats along the eastern seaboard from Florida to Nova Scotia: (a) off the southeastern United States, (b) in the Great South Channel, Massachusetts; (c) in Massachusetts and Cape Cod Bays, Massachusetts; (d) in the lower Bay of Fundy, Canada; and (e) over the southern Nova Scotian shelf, Canada (notably those areas referred to as Browns Bank and Roseway Basin). Portions of these areas have been designated as "critical habitat**?** for northern right whales or as a national marine sanctuary under United States domestic law and as conservation areas under Canadian law. Right whale sightings also occur outside these areas. The whales migrate between southeastern and northeastern United States; however, there is not enough information on occurrence of whales and shipping traffic to establish a system to cover this entire area. Little is known about the migratory corridor, but it is believed that migrating whales, in particular mothers and calves, remain within 20 miles of the coast.

.2 Description of northern right whale. Northern right whales reach lengths of 45 to 55 feet and are black in colour. The best field identification marks are a broad back with no dorsal fin, irregular bumpy white patches (callosities) on the head, and a distinctive two-column V-shaped blow. They have paddle-like flippers nearly as wide as they are long, and a broad, deeply notched tail. Right whales are slow moving, with occasional speeds of up to only 5-6 knots. They are often difficult to spot in rough seas and at night due to their low profile and dark coloration.

.3 Behaviour. Right whale behaviour undoubtedly plays a role in their vulnerability to ship collisions. For example, whales may occur in surface active groups - i.e., four to five individuals engaging in frequent physical contact and mating behaviour. Right whales also engage in skim feeding, in which they gather plankton by swimming slowly at the surface with their mouth open. During both feeding and surface active situations, whales are focused on the activity and appear unaware of the approach of ships. Right whales also spend long periods resting at the surface, a behaviour called "logging." Mothers nursing young are frequently observed logging. Additionally, calves have limited diving capacities and spend most of their time at the surface. Because right whales rest and nurse their young at the surface, the calves are unable to dive deeply, and the whales often do not move out of the way of oncoming ships, they are highly vulnerable to being struck by ships.

.4 Northeastern United States. Right whales occur seasonally in Massachusetts and Cape Cod Bays (peak season: January through April), the Great South Channel (peak season: April through June), and Jeffreys Ledge (peak season: July through mid-December). The first two areas are federally designated critical habitats for right whales. Stellwagen Bank (in Massachusetts Bay) and Jeffreys Ledge are located in the federally designated Gerry E. Studds Stellwagen Bank National Marine Sanctuary.

In late winter-early spring, right whales arrive in Cape Cod Bay. Springtime hydrographic conditions in Cape Cod Bay concentrate copepods and other zooplankton in dense patches on which the whales feed. The majority of right whales leave Cape Cod Bay by mid-May; however, whales remain throughout the summer in some years.

In late spring and early summer, right whales in the Great South Channel east of Cape Cod are found in the greatest numbers. Hydrographic changes and circulation pattern result in springtime blooms of zooplankton, including right whale prey. Right whales feed both at the surface and at depth depending on where copepods are concentrated. In many years, right whales usually congregate in the highest density concentrations of the copepod on either the eastern or western side of the Great South Channel.

Right whales generally migrate from the Great South Channel region in June when copepod levels decrease and water temperatures increase. Many of the whales move north to the Bay of Fundy arriving in mid-June. The remainder are likely scattered throughout the Gulf of Maine or move onto the eastern side of the Nova Scotian shelf. By mid-summer most of the whales are in feeding areas in the lower Bay of Fundy and on the Scotian Shelf. These areas are used in early winter when the whales begin to migrate to winter habitats along the eastern coast including the southern calving grounds.

.5 Southeastern United States. The coastal waters of the southeastern United States, especially the shallow waters between Savannah, Georgia, and Cape Canaveral, Florida, are right whale calving grounds in the winter. Peak abundance and

calving in this region is from December through March, but the winter calving season can begin as early as September and end as late as mid-April. Mothers and newborn calves tend to stay in the southeast region until spring when they migrate northward.

3 **Summary of measures used to date**

.1 The United States has taken numerous steps to advise mariners in the proposed reporting areas about the presence of right whales, the threats ships pose to the whales, and precautions that may be taken to avoid hitting whales. These include:

.1 Brochures, flyers, videos, and other information on the endangered status of right whales and precautionary measures have been developed and distributed to ships using ports in both areas by port authorities, port pilots, shipping agents, the Navy, state agencies and others.

.2 Information on right whales and precautionary measures that ships may take to avoid whales has been published in regional United States Coast Pilot, Notice to Mariners, and other publications and on nautical charts. Steps are being taken to update and expand right whale-related information in these and other documents.

.3 Periodic advisories on right whale locations are broadcast seasonally in both regions over Coast Guard Broadcast Notice to Mariners, NAVTEX, NOAA Weather Radio, on the internet, and, in the northeastern ship reporting system area only, the Cape Cod Canal Vessel Traffic Control, and the Bay of Fundy Vessel Traffic Control. These advisories are based on a combination of periodic aerial and ship surveys that attempt to locate right whales so that the information can be provided to mariners operating in the vicinity of the whales. These surveys unfortunately locate only a small percentage of the whales, the information from them remains valid only for a short period of time because the whales move, and they cannot be conducted at night or in bad weather. Despite the limitations of these surveys, they are the best means currently available for detecting the location of whales and providing valuable information on their location.

.1 In the northeast, the survey system is now in its second year of operation. The surveys were conducted in right whale critical habitat from January to early July. Co-ordinates for right whale sightings are disseminated by an automated fax system and made available to all marine resource users through the variety of telecommunications networks listed above. Maps of right whale sightings are also posted on internet web pages hosted by the Massachusetts Executive Office of Environmental Affairs and the National Marine Fisheries Service which are linked to other sites. Also a National Marine Fisheries Service inquiry line in the northeast region provides right whale sighting faxes to anyone requesting such information.

.2 In the southeast, the survey system has been in operation since 1994; surveys are conducted during the whales' calving season which is approximately December through March. Information on sightings from all sources is sent immediately to the Navy's Fleet Area Control and

Surveillance Facility, Jacksonville, Florida (FACSFACJAX). FACSFACJAX co-ordinates all sightings coming in from the states, naval vessels, and all other sources; eliminates duplicate sightings; and then forwards the information to the Coast Guard, which posts information on sightings over NAVTEX in the form of Notices to Mariners. Information from survey contractors also relay their sightings directly to the NAVTEX operators via fax. To the extent possible, ships underway in the vicinity of whales also may be contacted directly via VHF radio from surveillance aircraft.

.4 Information on the status of right whales, the impact of ship traffic, and precautions to avoid collisions between right whales and ships have been provided to the IMO through information papers and exhibits at recent meetings of the Sub-Committee on Safety of Navigation, the Marine Environment Protection Committee, the Maritime Safety Committee, and through the IMO News magazine.

.2 The National Marine Fisheries Service has designated areas with consistent and frequent right whale sightings in both the northeast and southeast as critical habitat under United States domestic law. In the northeast, a portion of the reporting area has also been designated as a national marine sanctuary under United States domestic law. The boundaries of designated right whale critical habitats and national marine sanctuary have been marked on regional nautical charts to alert mariners of the potential occurrence of right whales in these areas.

.3 In both areas, the National Marine Fisheries Service has established regional teams composed of representatives of government agencies, the maritime industry, the scientific community, and private groups to coordinate and oversee regional right whale conservation initiatives, including efforts to prevent collisions between right whales and ships.

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ANNEX 9

SUPPORTING INFORMATION FOR MANDATORY SHIP REPORTING SYSTEM "IN THE STRAIT OF DOVER/PAS-DE-CALAIS"

1 INTRODUCTION

In accordance with the requirements of the *Guidelines and Criteria for Ship Reporting Systems*, this annex sets out information in support of the proposal from France and the United Kingdom for a mandatory ship-reporting system in the Dover Strait/Pas-de-Calais.

2 OBJECTIVES OF THE SYSTEM

The system will provide two-way communications with shipping in one of the world's busiest areas. Ships will be provided with the latest available information and advice about navigational hazards and weather conditions to support their safe navigation and so protect the marine environment. Positive identification will also support the co-ordination of effective SAR operations in the area.

Identification will allow the shore-based VTS operators to monitor the rules of navigation within the TSS - Rule 10 of the International Regulations for Preventing Collisions at Sea (as amended). Each year, around 600 vessels contravene Rule 10 and so endanger the safety of their own vessel and others. Currently, less than half of these vessels can be positively identified so that appropriate action can be taken by their Flag States. Mandatory ship-reporting arrangements will improve that situation, and will also help in the positive identification of polluters.

In due course, arrangements will be made for information to be exchanged between this mandatory ship-reporting system and that already established off Ushant/Ouessant, providing a coherent service in support of safe navigation through the English Channel.

3 INFORMATION ON TRAFFIC DENSITIES AND INCIDENTS

Traffic in the ship reporting area is continuously monitored by radar. The level of traffic varies, but there are around 600 vessel movements daily, including significant fishing vessel activity. There are 300 ship movements daily **through** the Dover Strait/Pas-de-Calais and around 200 cross-channel ferry operations.

The geographical configuration of the area and the presence of shallow waters and sandbanks contribute to navigational risks, which are increased by often unfavourable meteorological conditions: visibility is less than 2 nautical miles for 80 days each year, and there is zero visibility for 40 of those days.

Incidents in support of these arrangements include:

- grounding of the **Stena Challenger** on the Sangatte Beach on 19 September 1995;

and more recently,

- collision between the oil tanker **Bona Fulmar** and the bulk carrier **Teoalt - 18** January 1997.

In these cases, the identities of the ships were established. Other incidents where positive ship identification was not known include:-

- loss of the fishing vessel **Ocean Hound** and its crew in August 1991. Mandatory reporting may have identified the vessel that struck the **Ocean Hound**;

- a loaded bulk carrier strayed from the north east lane into the south west lane of the TSS because of a gyro error and sailed against the flow of traffic. Although VTS operators made contact with the ship after some time, earlier contact could have been made if mandatory reporting had been in place; and,

- frequently ships leaving the SCHELDTE take a short cut down the Sandettie Deep-Water Route against the traffic flow. Mandatory reporting would allow the positive identification of offending ships and follow up action could be taken by Flag States.

4 EXISTING MEASURES AND THEIR INADEQUACY

Voluntary ship-reporting arrangements already exist in the proposed reporting area in the form of MAREPs and SURNAV for ships over 300 gross tonnage. Experience has shown that only between 25-30% of the ships covered by these arrangements actually make reports to DOVER COASTGUARD or GRIS NEZ TRAFFIC. This is disappointing and does not make the most effective use possible of the navigation support infrastructures in place on the English and French coasts.

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ANNEX 10

MANDATORY SHIP REPORTING SYSTEMS

DRAFT RESOLUTION MSC.[...](70)

adopted on .. December 1998

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO regulation V/8-I of the International Convention for the Safety of Life at Sea (SOLAS), 1972 concerning the adoption by the Organization of ship reporting systems,

RECALLING FURTHER resolution A.826(19) which authorizes the Committee to perform the function of adopting ship reporting systems on behalf of the Organization,

TAKING INTO ACCOUNT the Guidelines and criteria for ship reporting systems adopted by resolution MSC.43(64),

HAVING CONSIDERED the recommendations of the Sub-Committee on Safety of Navigation at its forty-fourth session,

1. ADOPTS, in accordance with SOLAS regulation V/8-I, the mandatory ship reporting systems:

   - Off the northeastern and the southeastern coasts of the United States area described in the Annex 1 to the present resolution;

   - In the Strait of Dover/Pas-de-Calais area described in the Annex 2 to the present resolution; and

2. DECIDES that the mandatory ship reporting system:

   - Off the northeastern and the southeastern coasts of the United States area will enter into force at 0000 hours UTC on [1 July 1999]

   - In the Strait of Dover/Pas-de-Calais area will enter into force at 0000 hours UTC on [1 July 1999]; and

3. REQUESTS the Secretary-General to bring this resolution and its Annexes to the attention of Members of the Organization and Contracting Governments to the SOLAS Convention.

ANNEX 1

DESCRIPTION OF THE MANDATORY SHIP REPORTING SYSTEMS FOR PROTECTION OF ENDANGERED NORTH ATLANTIC RIGHT WHALES IN SEA AREAS OFF THE NORTHEASTERN AND SOUTHEASTERN COASTS OF THE UNITED STATES

1 Categories of ships required to participate in the system

All ships of 300 gross tonnage or greater are required to participate in the reporting systems, except sovereign immune vessels which are exempt from reporting by regulation V/8-1(c).

2 Geographical coverage of the proposed systems and the number and edition of the reference chart used for the delineation of the system

2.1 Northeastern United States. Geographical boundaries of the proposed northeast area include the water of Cape Cod Bay, Massachusetts Bay, and the Great South Channel east and southeast of Massachusetts (Attachment A). Co-ordinates of the proposed area are as follows: from a point on Cape Ann, Massachusetts at 42°39'.00 N, 70°37'.00 W; then northeast to 42°45'.00 N, 70°13'.00 W; then southeast to 42°10'.00 N, 68°31'.00 W; then south to 41°00'.00 N, 68°31'.00 W; then west to 41°00'.00 N, 69°17'.00 W; then northeast to 42°05'.00 N, 70°02'.00 W, then west to 42°04'.00 N, 70°10'.00 W; and then along the Massachusetts shoreline of Cape Cod Bay and Massachusetts Bay back to the point on Cape Anne at 42°39'.00 N, 70°37'.00 W. NOAA Chart No.13009.

2.2 Southeastern United States. Geographical boundaries of the proposed southeast area include coastal waters within about 25 nm along a 90 nm stretch of the Atlantic seaboard in Florida and Georgia (Attachment B). The area extends from the shoreline east to longitude 80°51'.60 W with the southern and northern boundary at latitudes 30°00'.00 N and 31°27'.00 N, respectively. NOAA Chart No.11009.

3 Format, content of report, times and geographical positions for submitting reports, authority to whom the reports should be sent, available services

3.1 Format

The format for reporting is as set forth in paragraph 2 of the appendix to Assembly resolution A.851(20). An example of a transmission between ship and shore is at Attachment C.

3.2 Content

Ships are required to provide the following information: the name of the ship; call sign or IMO identification number if applicable; position when entering the system; course; speed; route; and destination. Commercially sensitive information received in conjunction with the reporting system shall be kept confidential.

3.3 Geographical position for submitting reports

Participating ships are required to report to a shore-based authority only when entering the reporting area during a single voyage (that is, a voyage in which a ship is in the area to visit one or multiple ports or traverse the area before leaving for a port outside the reporting area); ships will not be required to report in again after leaving a port in the area or when exiting the system.

3.4 Authority

The authority for both areas of the system is the United States Coast Guard.

4 Information to be provided to participating ships and procedures to be followed

Ships will be provided with the following information:

4.1 Mariners shall be informed that they are entering an area of critical importance for the protection of the highly endangered right whale; that such whales are present; and that ship strikes pose a serious threat to whales and may cause damage to ships. Communication systems between ship and shore are described in paragraphs 7 and 8, below.

4.2 To obtain seasonal right whale advisories which are broadcast periodically, mariners would also be advised to monitor Coast Guard Broadcast Notice to Mariners, NAVTEX, NOAA Weather Radio, and, in the northeastern ship reporting system area only, the Cape Cod Canal Vessel Traffic Control and the Bay of Fundy Vessel Traffic Control. These advisories are based on surveys that are flown seasonally and in daylight and good weather conditions only. The sighting information may be useful only for brief periods as the whales move and surveys detect a small percentage of the whales present.

4.3 Mariners would be advised to consult with NAVTEX, Inmarsat-C SafetyNET (satellite text broadcasts), the United States Coast Pilot, Notice to Mariners, the nautical charts for information on the boundaries of the right whale critical habitat and the national marine sanctuary, applicable regulations, and precautionary measures that mariners may take to reduce the risk of hitting right whales. Mariners will further be advised that information placards, videos, and other educational materials are available from shipping agents, port authorities, pilots, relevant state agencies, the Coast Guard, and the National Marine Fisheries Service.

4.4 In the message back to the ship, mariners would also be requested to report any whale sightings and dead, injured, or entangled marine mammals to the nearest local Coast Guard station.

4.5 Where available, specific and timely information on whale locations will be provided to ships.

5 Radiocommunications required for the system, frequencies on which reports should be transmitted and the information to be reported

5.1 The reporting system in the northeastern United States will operate independently of the system in the southeastern United States. The system in the northeastern United States will operate year round, and the system in the southeastern United States will operate from 15 November through 15 April.

5.2 The systems will require ships to report in standard format preferably through Inmarsat-C. For ships using Inmarsat-C, the message will be sent to the shore-based authority described in paragraph 7.1 and a message will be automatically transmitted back to the ship also via Inmarsat-C.

5.3 Ships not equipped with Inmarsat-C will be required to report in standard format to the shore-based authority described in paragraph 7.2, either through direct-printing telegraphy (Inmarsat A/B, HF, MF or VHF) or by telephony (Inmarsat A/B, MF, HF or VHF). Ships reporting through such direct-printing telegraphy systems will receive a message from the shore-based authority described in paragraph 7.2.

5.4 The language used for reports in the system will be English, using the IMO *Standard Marine Communication Phrases* where necessary. Standard phrases in a prescribed format will be used in all direct-printing telegraphy and radiotelephony communications.

5.5 Commercially sensitive information will be kept confidential.

5.6 The United States will review the ship reporting systems no later than five years after their implementation date, to examine advances made in ship communication technologies and to ensure effective operation of the systems.

6 Rules and regulations in force in the areas of the system

The United States has taken appropriate action to implement international conventions to which it is a party including, where appropriate, adopting domestic legislation and promulgating regulations through domestic law. Relevant laws in force include domestic legislation and regulations to implement the International Convention on Collision Regulations, the Safety of Life at Sea Convention, the International Convention on the Prevention of Pollution from Ships, the International Convention on Oil Pollution, Preparedness, Response and Co-operation, the Convention on the International Trade in Endangered Species of Wild Fauna and Flora, the International Convention for the Regulation of Whaling, and other treaties. Relevant domestic legislation includes the Ports and Waterways Safety Act, the Endangered Species Act, the Whaling Convention Act, the Marine Mammal Protection Act, the Marine Protection Resources and Sanctuaries Act, and a variety of other acts. In some cases, rules have been promulgated including those relating specifically to right whales or governing ship operations. For example, a regulation has been promulgated which prohibits most approaches within 500 yards (460 meters) of a northern right whale. This regulation, as well as other domestic law, is implemented and enforced consistent with international law.

7 Shore-based facilities to support operation of the system

7.1 The shore-based authority for those ships reporting via Inmarsat-C is the United States Coast Guard. The e-mail address to be used for this reporting will be provided well in advance of implementation of the systems through Notices to Mariners.

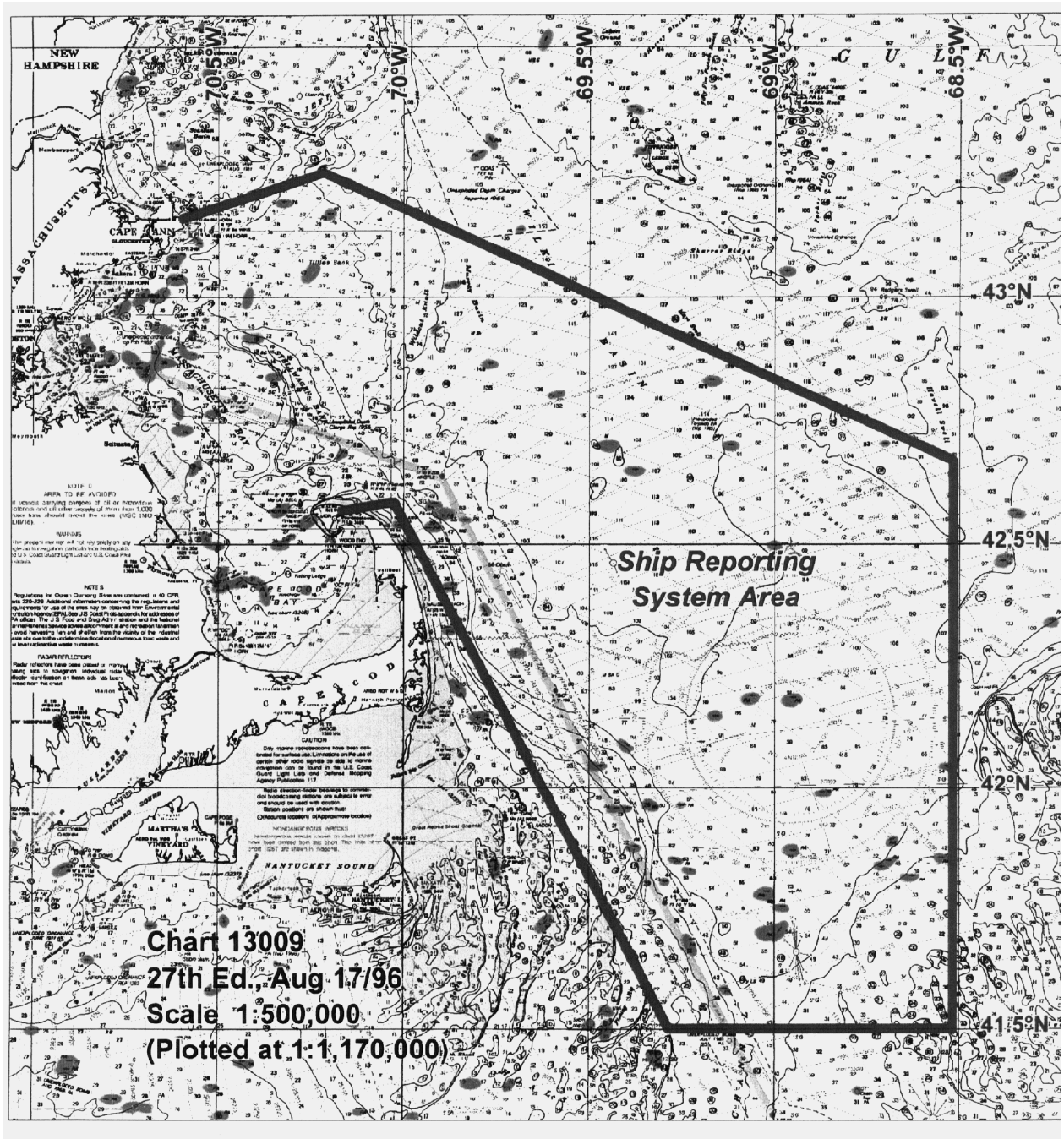
7.2 The small percentage of ships that do not have Inmarsat-C capabilities will be required to contact the nearest Coast Guard communication station through appropriate communication channels. The United States Coast Guard maintains communication stations along the United States east coast. Information about these stations can be found in the GMDSS Master Plan (GMDSS/Circ.7) or National Imagary and Mapping Agency (NIMA) Publication 117. Information received from the ships will be sent electronically to a central location for data storage, handling, and retrieval.

8 Alternative communications if the communication facilities of the shore-based authority fails

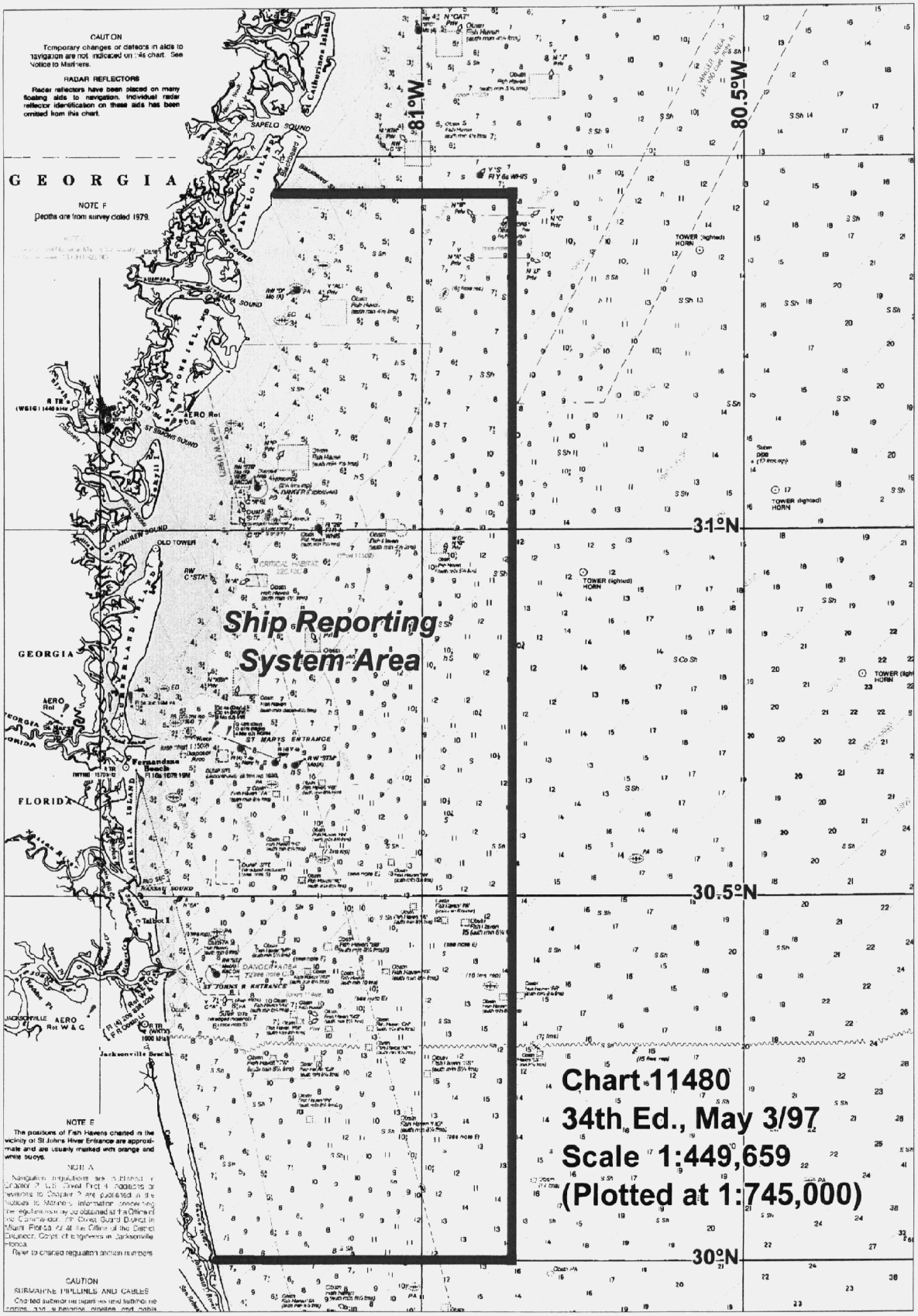
Short-term failure of the reporting systems due to communications problems will not result in a loss of life, and will have minimal impact on the safety of vessels. NAVTEX Broadcast Notice to Mariners can be used to notify mariners of the temporary failure of the system and can provide mariners with basic information necessary to avoid right whales. Downtime is likely to be minimal and is not expected to result in increased ship strikes and whale mortality. For those ships reporting through INMARSAT C or direct printing radiotelegraphy, the standard protocol now used for such systems will be used to re-route incoming and outgoing communications through an alternate address and it is expected that this will minimize the system's downtime, though some delay may occur.

The Coast Guard operated MF, HF, VHF voice communications systems, by design, have built in redundancies and overlapping coverage areas and an individual equipment or site failure are unlikely to affect the ability of a mariner to contact a Coast Guard facility to make a required report.

Attachment A



Attachment B



Attachment C

Example of Message from the Ship

A Ship Name

B Call Sign or IMO Identification Number

D Course

E Speed

H Entry

I Destination

L Route

Example of Message Back to the Ship

00016April1999
From: Shore-based Authority
To: M/V Ship

You are entering an area where North Atlantic right whales exist. Right whales are critically endangered and at risk from ship strikes. Whales can damage ships' sonar dome, propeller, and shaft. Recommend monitoring Coast Guard Broadcast Notice to Mariners, NAVTEX, NOAA Weather Radio, or, in the northeast only, Cape Cod Canal Vessel Traffic Control and Bay of Fundy Vessel Traffic Control for latest advisories and sightings reports. These advisories and reports are based on surveys which are conducted seasonally; however, such surveys only locate only a small percentage of the whales, the information from them remains valid only for a short period of time because the whales move, and they cannot be conducted at night or in inclement weather.

Urge exercising prudent seamanship to avoid approaching right whales. Recommend consulting NAVTEX, Inmarsat-C SafetyNET, the U.S. Coast Pilot, and Notices to Mariners for information on precautionary measures that may be taken to reduce the risk of hitting right whales and for applicable regulations. Right whale critical habitat and the Stellwagen Bank National Marine Sanctuary are also marked on charts.

Right whale information placards, videos, and other educational material are available from shipping agents, port authorities, relevant state agencies, the U.S. Coast Guard, and the National Marine Fisheries Service. Mariners are requested to report right whale sightings, whale entanglements, or dead whales to the Coast Guard on VHF Channel 16.

ANNEX 2

DESCRIPTION OF THE MANDATORY SHIP-REPORTING SYSTEM FOR THE DOVER STRAIT/PAS-DE-CALAIS

1 Categories of ships required to participate in the system

Ships of 300GT and over are required to participate in the system. This threshold is the same as used in the existing voluntary MAREP scheme (IMO document SN/Circ.167, annex, page 4).

Within the coverage area, these arrangements replace the existing MAREP scheme for ships of 300GT and over. However, ships of less than 300GT should continue to make reports under the existing voluntary arrangements in circumstances where they:-

- are "not under command" or at anchor in the TSS or its ITZs;
- are "restricted in their ability to manoeuvre"; or,
- have defective navigational aids.

The MAREP arrangements outside the coverage area of this system remain unchanged.

2 Geographical coverage of the system and the number and edition of the reference chart used for the delineation of the system

The system covers a 65 mile stretch of the Dover Strait/Pas-de-Calais and is bounded by a line to the east drawn from North Foreland to the border between France and Belgium; and by a line to the west drawn from the Royal Sovereign Light Tower, through the Bassurelle Light Buoy (at its assigned position of 50°32'.80 N, 0°57'.80 E) to the coast of France.

The reference charts are British Admiralty Charts 2449 (1998 edition, scale 1:150,000) and 2451 (1991 edition, scale 1:150,000), and also chart 7312 of the French Navy Hydrographic and Oceanographic Service (INT 1072) (1994 edition, scale 1:375000). Also relevant is the British Admiralty Chart 5500 - *Mariners' Routeing Guide English Channel and Southern North Sea* and the French Navy Hydrographic and Oceanographic Service, 5HOM 8001 Chart - *Guide pour la préparation de la traversee de la Manche.*

The area of the reporting system is covered by modern hydrographic surveys and areas of unstable seabed are regularly resurveyed to ensure navigational safety.

3 Format and content of reports, times and geographical positions for submitting reports, authority to whom reports should be sent and available services

The reports required from ships entering the area covered by the system are position reports similar to the existing MAREP/POSREP arrangements. The short title for the ship-report is CALDOVREP.

Reports should be made using VHF voice transmissions. However, when reporting to DOVER COASTGUARD, ships can fulfil the reporting requirements of a CALDOVREP through the use of automatic ship identification transponders by the Organization.

A ship may elect, for reasons of commercial confidentiality, to communicate that section of the report which provides information on cargo by non-verbal means prior to entering the system.

3.1 Format

The information given below is derived from the format-type given in paragraph 2 of the appendix to resolution A.851(20).

3.2 Content

A report from a ship to the shore-based authorities should contain the following information to achieve the objectives of the system:

A	-	Name of the ship, call sign, IMO identification number (or MMSI for transponder reports)
C or D	-	Position (expressed in latitude and longitude).
E and F	-	Course and speed of the ship.
O	-	Vessel's draught.
L	-	Route information
P	-	Hazardous cargo, class and quantity, if applicable.
Q or R	-	Breakdown, damage and/or deficiencies affecting the structure, cargo or equipment of the ship or any other circumstances affecting normal navigation in accordance with the provisions of the SOLAS and MARPOL Conventions.

Note:
On receipt of a position message, the VTS operators will establish the relationship between the ship's position and the information supplied by the position fixing equipment available to them. Information on course and speed will help operators to identify one ship among a group of ships. This will be achieved automatically if a transponder is used.

3.3 Geographical position for submitting reports

North-east bound traffic should report to GRIS NEZ TRAFFIC on the French coast 2 nautical miles before crossing the line from the Royal Sovereign light tower, through the Bassurelle Light Buoy (at its assigned position of 50°32.8N, 0°57.8E) to the coast of France.

South-west-bound traffic should report to the shore at DOVER COASTGUARD on the English coast when within VHF range of North Foreland and not later when crossing the line drawn from North Foreland to the border between France and Belgium.

Crossing Traffic

Reports to the nearer of the two shore stations should be made on departure from a port within the coverage area. Recognizing that cross-Channel ferries generally operate according to published schedules, special reporting arrangements can be made on a ship-by-ship basis, subject to the approval of **both** GRIS NEZ TRAFFIC and DOVER COASTGUARD.

Further reports should be made to the relevant shore station whenever there is a change of navigational circumstance, particularly in relation to items Q and R of the reporting format.

3.4 Authority

The shore-based authorities are the Regional Centre for Surveillance and Rescue Operations, CROSS GRIS NEZ (Call Sign: GRIS NEZ TRAFFIC) - provided by the French Ministry with responsibility for maritime navigation, and the Maritime Rescue Co-ordination Centre, MRCC DOVER (Call Sign: DOVER COASTGUARD) - provided by HM Coastguard, which is part of the United Kingdom's Department of the Environment, Transport and the Regions.

Both GRIS NEZ and DOVER sites monitor shipping in the TSS in the Dover Strait / Pas de Calais using radar and each provides regular information about weather and navigational hazards as part of the joint Channel Navigation Information Service (CNIS). Information is broadcast at the following times and on the following frequencies:-

Station	**Frequency**	**Times**	**Additional broadcasts in times of poor visibility**
Gris Nez (Call Sign: GRIS NEZ TRAFFIC)	VHF Ch 79	H + 10	H + 25
Dover (Call Sign: DOVER COASTGUARD)	VHF Ch 11	H + 40	H + 55

Information broadcasts will be preceded by an announcement on VHF Ch 16 and broadcasts from both stations will end with a reminder about the time of the next broadcast and the VHF frequency on which it will be made.

4 Information to be provided to participating ships

If necessary, individual information can be provided to a ship, particularly in relation to positioning and navigational assistance.

5 Radiocommunications requirements for the system, frequencies on which reports should be transmitted and information to be reported

The radiocommunications equipment required for the system is that defined in the GMDSS for Sea Area A1.

The ship reports can be made by voice on VHF radio using Ch 13 (GRIS NEZ TRAFFIC) or Ch 69 (DOVER COASTGUARD). Another frequency may also be available for DOVER COASTGUARD and the Organization will be informed of the details before the system enters into force.

Ship reports to DOVER COASTGUARD can alternatively be made by automatic ship-identification transponder, where available, using a suitably adapted DSC facility on VHF Ch 70, or equipment conforming to the standards adopted for the Universal AIS Transponder.

Confidential information may be transmitted by other means.

6 Relevant rules and regulations in force in the area of the system

The International Regulations for Preventing Collisions at Sea 1972 (as amended) apply throughout the reporting area. In particular, Rule 10 of those Regulations applies to the IMO-adopted TSS.

Ships carrying dangerous or hazardous cargoes and bound to or from any port within the proposed reporting area must comply with the European HAZMAT Directive (EC Directive 93/75).

In addition to these international requirements, the Joint Decree of the Préfét Maritime de l'Atlantique and the Préfét Maritime de la Manche et de la Mer du Nord (No. 92/97 - Brest, No. 03/97 - Cherbourg) control navigation in the approaches to the French coast in the North Sea, the English Channel and the Atlantic in order to prevent accidental marine pollution. The Regulations make provision, in particular, for ships transporting hydrocarbons (MARPOL '73 Annex I), harmful liquid substances (MARPOL Annex II), noxious substances (MARPOL Annex III), dangerous goods (IMDG Code), preparing to pass through or remain in French territorial waters, to send an advance report to the appropriate CROSS five hours before entering territorial waters, or six hours before departure. The message sent to the CROSS must make clear the ship's intended movements in territorial waters and the status of its ability to manoeuvre and navigate.

The same Regulations require ships to monitor VHF Ch 16 or other specific frequencies in certain areas, and require the reporting of any accident within 50 miles of the French coast and the taking of any action required by the maritime authorities to reduce risks.

The United Kingdom has established a pollution control zone under the Merchant Shipping (Prevention of Pollution) (Limits) Regulations 1996. The proposed reporting area is included within those limits. Ships causing pollution within the area can be prosecuted and fined more than £250,000.

7 Shore-based facilities to support operation of the system

Dover Coastguard

The Channel Navigation Information Service (CNIS) has radar, an Information Processing and Retrieval System (IPRS), access to the United Kingdom's HM Coastguard operational radiocommunications, VHF Direction Finding (DF), radio VHF Digital Selective Calling (DSC), and Automatic Identification System (AIS) facilities. CNIS supports the primary responsibilities of preserving safety of life at sea and co-ordinating responses to incidents.

7.1 CNIS facility

The CNIS processing and display system receives inputs from the radar and VHF DF equipment, processes the information and presents it on any or all of six displays. Each display shows processed images (tracks) from any of the three radar inputs overlaid on a synthetic map of a selected area. New targets entering radar range are automatically tagged with a unique track number. The position, course and speed information of up to 300 tracks is automatically updated and recorded, for each of the three radars, throughout the vessel's passage through the CNIS area, giving the CNIS a 900 track capability.

DOVER COASTGUARD maintain a continuous watch on traffic in the Dover Strait / Pas de Calais. Operators can add vessel information to the associated IPRS database (such as name and cargo) and can display that supporting information on a separate screen. CNIS is capable of providing an automatic alarm to identify any track which strays into an unauthorised area. VHF DF vectors appear when a VHF radio transmits on the frequency selected on the VHF DF equipment Recording equipment automatically stores information from all tracks, which can either be replayed on the system or specific track movements can be plotted onto an A0 size sheet of paper. CNIS operators have access to Lloyd's Register and Hazardous Cargo data on a separate computer.

7.2 Radar facilities

Three surveillance radars cover the CNIS area and the area of the mandatory ship-reporting system. These are TERMA Dual X Band systems, each comprising main and back-up transceivers (type 232075) and a single antenna. The radars are located at:

- **Margate** - The antenna is 118 metres above mean ordnance datum and covers the area from the southern area of the North Sea to Dover;

- **Dover** - The antenna is 125 metres above mean ordnance datum and covers the area from North Foreland to Hastings; and,

- **Fairlight** - The antenna is 126 metres above mean ordnance datum and covers the area from Dover to the western boundary of the CNIS area.

Data from the Margate and Fairlight radars are transmitted to DOVER COASTGUARD via microwave links. The radars have a minimum operational range of 75 nautical miles, although the operational range of each radar is limited by radar video units to 35 nautical miles to prevent the track table from filling up with vessels which are not entering the CNIS area.

7.3 VHF DF facilities

CNIS automatically displays vectors generated from the DF systems at Dover, Fairlight, North Foreland, St. Frieux and Cap Gris Nez. All of the DF systems may be set to one of a number of the VHF channels used in the area. In parallel, Channel 16 receivers monitor the distress channel, should a distress call be sent.

7.4 Radiocommunications facilities

Radiocommunications terminals are sited in the consoles of the MRCC DOVER Operations Room. VHF radio receivers are located at Dover, while their associated transmitters are at West Hougham (near Folkestone) to gain optimum coverage of 13 VHF channels. MF is also fitted at Dover. Other VHF Transmitters are fitted at Fairlight and North Foreland radio sites and are controlled via landlines. The VHF channels used are:

- VHF Air (AM) on 132.65 MHz
- Ch 0 (SAR);
- Ch 6 (inter ship / scene of search for SAR);
- Ch 9 (pilotage) - receive only;
- Ch 10 (counter pollution);
- Ch 11 (port operations)
- Ch 12 (Thames port control) - receive only;
- Ch 13 (inter ship and port operations);
- Ch 14 (Thames port control) -receive only;
- Ch 16 (international distress) - continuously monitored;
- Ch 30 (special operations);
- Ch 67 (small ship safety) - secondary SAR;
- Ch 69 (inter ship, port operations and CNIS) - continuously monitored;
- Ch 73 (Ch 0 back up);
- Ch 74 (Dover port control);
- Ch 80 (marinas);
- Ch 99 (Coastguard private channel).

7.5 VHF DSC facilities

A VHF Ch 70 digital calling system has been installed as part of the GMDSS requirement. Its purpose is to provide rapid distress alerting between vessels and the shore, routine calling of vessels and AIS facilities. DSC communications are available to all operator positions at DOVER COASTGUARD. DSC takes priority over all other operations.

7.6 AIS facilities

DOVER COASTGUARD can interrogate ships fitted with transponders to gain information on their identity and position. This information is displayed as an icon on an electronic charting package covering the CNIS area.

GRIS NEZ TRAFFIC

Similar facilities to those at DOVER COASTGUARD are also available at GRIS NEZ TRAFFIC. The two centres act in partnership in the operation of the CNIS. GRIS NEZ TRAFFIC specifically has the following facilities.

7.7 Radar facilities

GRIS NEZ TRAFFIC is equipped with two radar installations at:-

- **Cap Gris Nez; and**
- **Mont St. Frieux.**

The two radar installations are linked to a single processing system, giving a complete visual display of the area covered.

7.8 Particular features

The system at GRIS NEZ TRAFFIC allows the simultaneous monitoring of 1,000 tracks, which can be recorded and saved for up to a year. Advanced functions include alarms signalling risk scenarios, the identification of tracks infringing Rule 10 of the COLREGs, the monitoring of ships which make abrupt changes of course and speed, the observation of ships entering prohibited areas, and the monitoring of ships at anchor. All situations can be recorded, archived, and replayed either on screen or in the form of a print out.

7.9 Radiocommunications facilities

CROSS GRIS NEZ is equipped with 4 VHF radio installations, allowing coverage of the whole of the reporting area. Each station can send or receive on:

- VHF DSC Ch 70 (continuously monitored)
- Ch 16 (continuously monitored)
- Ch 13 (on which ships are requested to send their reports - again, continuously monitored)

One station (Cap Gris Nez) has facilities to send and receive information on MF, both through radiotelegraphy and DSC on a frequency of 2187.5 kHz, which is continually monitored.

7.10 Direction finding equipment

GRIS NEZ TRAFFIC is equipped with 2 VHF radio direction finders installed at Cap Gris Nez and Mont St. Frieux, allowing VHF calls to be located precisely. Each installation can monitor 2 frequencies simultaneously within an accuracy of 0.5°.

7.11 Personnel

Both DOVER COASTGUARD and GRIS NEZ TRAFFIC are staffed by personnel experienced in the management of ship reporting systems.

8 Alternative communication if the shore-based facilities fail

CNIS is designed with sufficient system redundancy to cope with normal equipment failure. Radars have dual transmitter/receivers controlled either from MRCC DOVER or the radar site. Radiocommunications are controlled at the MRCC. In the event of a failure there, each transmitter/receiver can be operated from the radar site. Limited coverage can also be achieved using emergency 25W transceivers, or 5W portable radios at DOVER COASTGUARD. If CNIS operations are jeopardised at either DOVER COASTGUARD or GRIS NEZ TRAFFIC, then the other site can assume total control.

9 Measures to be taken if a ship fails to comply with the requirements of the system

The primary objective of the system is to facilitate the exchange of information between the ship and the shore and so support safe navigation and the protection of the marine environment. All means will be used to encourage and promote the full participation of ships required to submit reports under SOLAS Regulation V/8-1. If reports are not submitted and the offending ship can be positively identified, then information will be passed to the relevant Flag State Authorities for investigation and possible prosecution in accordance with national legislation. Information will also be made available to Port State Control inspectors.

ANNEX 3

SUMMARY

1 Categories of ships to report

All ships of 300 gross tonnage and over.

2 When and where to report

North-east bound traffic: GRIS NEZ TRAFFIC on the French coast 2 nautical miles before crossing the line from the Royal Sovereign Light Tower, through the Bassurelle Buoy (at its assigned position of 50°32'.80 N, 0°57'.80 E) to the French coast.

South-west bound traffic: DOVER COASTGUARD on the English coast when within VHF range of North Foreland, and not later than when crossing the line drawn from North Foreland to the border between France and Belgium.

Report to the nearer of the two shore stations on departure from a port **within the area covered**.

3 How to report

By voice on VHF radio using Ch 13 (GRIS NEZ TRAFFIC) or Ch 69 (DOVER COASTGUARD). Another frequency may also be available for DOVER COASTGUARD and the Organization will be informed of the details before the system enters into force.

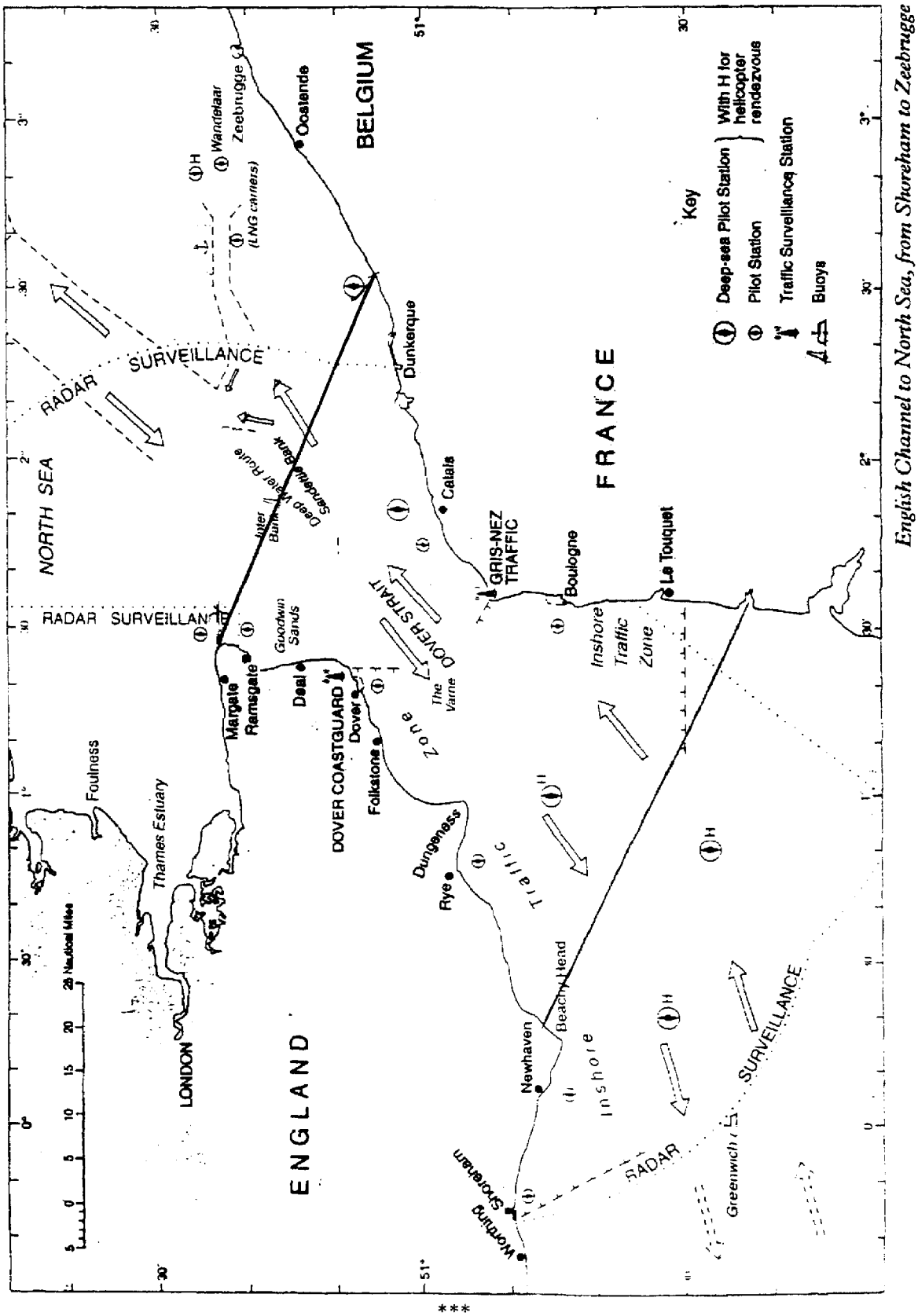
Alternatively to DOVER COASTGUARD by automatic ship-identification transponder, or using equipment conforming to the standards adopted for the Universal AIS Transponder.

Confidential information may be transmitted by other means.

4 Reporting format

A	-	Name of the ship, call sign, IMO identification number (or MMSI for transponder reports)
C or D	-	Position (expressed in latitude and longitude)
E and F	-	Course and speed of the ship.
O	-	Vessel's draught.
L	-	Route information
P	-	Hazardous cargo, class and quantity, if applicable.
Q or R	-	Breakdown, damage and/or deficiencies affecting the structure, cargo or equipment of the ship or any other circumstances affecting normal navigation in accordance with the provisions of the SOLAS and MARPOL Conventions.

ANNEX 4


English Channel to North Sea, from Shoreham to Zeebrugge
NORTH SEA
ENGLAND
BELGIUM
FRANCE
SURVEILLANCE
RADAR
RADAR SURVEILLANCE
DOVER COASTGUARD
DOVER STRAIT
GRIS-NEZ TRAFFIC
Inshore Traffic Zone
Deep Water Route
Sandettie Bank
Goodwin Sands
The Varne
Dungeness
Beachy Head
Greenwich
LONDON
Thames Estuary
Foulness
Margate
Ramsgate
Deal
Dover
Folkstone
Rye
Newhaven
Worthing
Shoreham
Zeebrugge
Wandelaar
(LNG carriers)
Oostende
Dunkerque
Calais
Boulogne
Le Touquet
Key
Deep-sea Pilot Station
Pilot Station
Traffic Surveillance Station
Buoys
With H for helicopter rendezvous
20 Nautical Miles

ANNEX 11

DRAFT SN CIRCULAR

GUIDANCE FOR SHIPS TRANSITING ARCHIPELAGIC WATERS

1 This circular provides guidance for ships transiting archipelagic waters of archipelagic States.

Navigation Rights Within Archipelagic Waters

2 Except for internal waters within archipelagic waters, all ships enjoy the right of *innocent passage* through archipelagic waters and the territorial sea of an archipelagic State.

2.1 In addition, all ships, including submarines, also enjoy the right of *archipelagic sea lanes passage* in sea lanes adopted by the International Maritime Organization (IMO) and designated by the archipelagic State or, if sea lanes have not been adopted and designated, through all normal passage routes used as routes for international navigation.

2.1.1 Additionally, if the IMO has adopted a sea lane proposal as a **partial system** of archipelagic sea lanes, the right of archipelagic sea lanes passage may continue to be exercised through all normal passage routes used as routes for international navigation in other parts of archipelagic waters. Any future proposals in regard to other normal passage routes (as with substitute sea lanes) are to be submitted to the IMO.

2.1.2 *Archipelagic sea lanes passage* means the exercise in accordance with the United Nations Convention on the Law of the Sea of the right of navigation in the normal mode solely for the purpose of continuous, expeditious and unobstructed transit between one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone. While the right of innocent passage may be suspended in certain circumstances, the right of archipelagic sea lanes passage cannot be suspended by an archipelagic State.

Representation of Archipelagic Sea Lanes on Charts

3 Archipelagic sea lanes are defined by a series of continuous axis lines from the entry points of passage routes to the exit points.

3.1 Axis lines of archipelagic sea lanes are shown on charts for the purpose of defining sea lanes and are not intended to indicate the deepest water, or any routes or recommended tracks as defined in Part A of the IMO Publication on Ships' Routeing.

3.2 The axis of designated archipelagic sea lanes, including a listing of geographical co-ordinates with geodetic datum that define axis turning points, and any prescribed traffic separation schemes, will be clearly shown on all appropriate scale charts, to which due publicity is to be given, and referred to in complementary hydrographic publications.

3.3 The outer limits of an archipelagic sea lane are not required to be depicted on charts. In areas where the 10 per cent rule applies as referred to in paragraph 4.5 below, the outer limits of the sea lane should, so far as practicable, be clearly indicated on the charts.

3.4 The legends, symbols and notes for the representation and details of archipelagic sea lanes

and associated measures on nautical charts can be found in the new Part H of the IMO Publication on Ships' Routeing.

Navigation within Archipelagic Sea Lanes

4 Use of an archipelagic sea lane is not mandatory. However, ships exercising the right of *archipelagic sea lanes passage* (in lieu of the right of *innocent passage*) must use applicable sea lanes (or normal passage routes, if sea lanes have not been adopted or only a partial system of archipelagic sea lanes has been adopted). Outside sea lanes or normal routes, ships must transit archipelagic waters in innocent passage.

4.1 Ships may exercise archipelagic sea lanes passage in their *normal mode of operation*. This means, for example, that submarines may transit submerged and surface ships may engage in normal operations, such as replenishment-at-sea and the operation of embarked aircraft, where consistent with the safety of navigation.

4.2 Ships are required to respect any traffic separation schemes in archipelagic sea lanes established in accordance with Part A of the IMO Publication on Ships' Routeing.

4.3 Within archipelagic sea lanes, traffic is not separated, except in traffic separation schemes.

4.4 If there are no islands bordering the sea lane, ships in archipelagic sea lanes passage are required to not deviate more than 25 nautical miles to either side of the axis line defining the archipelagic sea lane. Innocent passage may be exercised in sea areas beyond 25 nautical miles of the axis line.

4.5 Where an island borders the sea lane, ships in archipelagic sea lanes passage may not navigate closer to the coast than 10 per cent of the distance between the nearest point on the island and the axis line of the sea lane. Ships may still transit within this area in innocent passage. A diagram depicting the composition of an archipelagic sea lane and application of the 10 per cent rule is attached.

5 Member Governments are invited to bring this guidance and the annexed explanatory chartlet to the attention of all concerned.

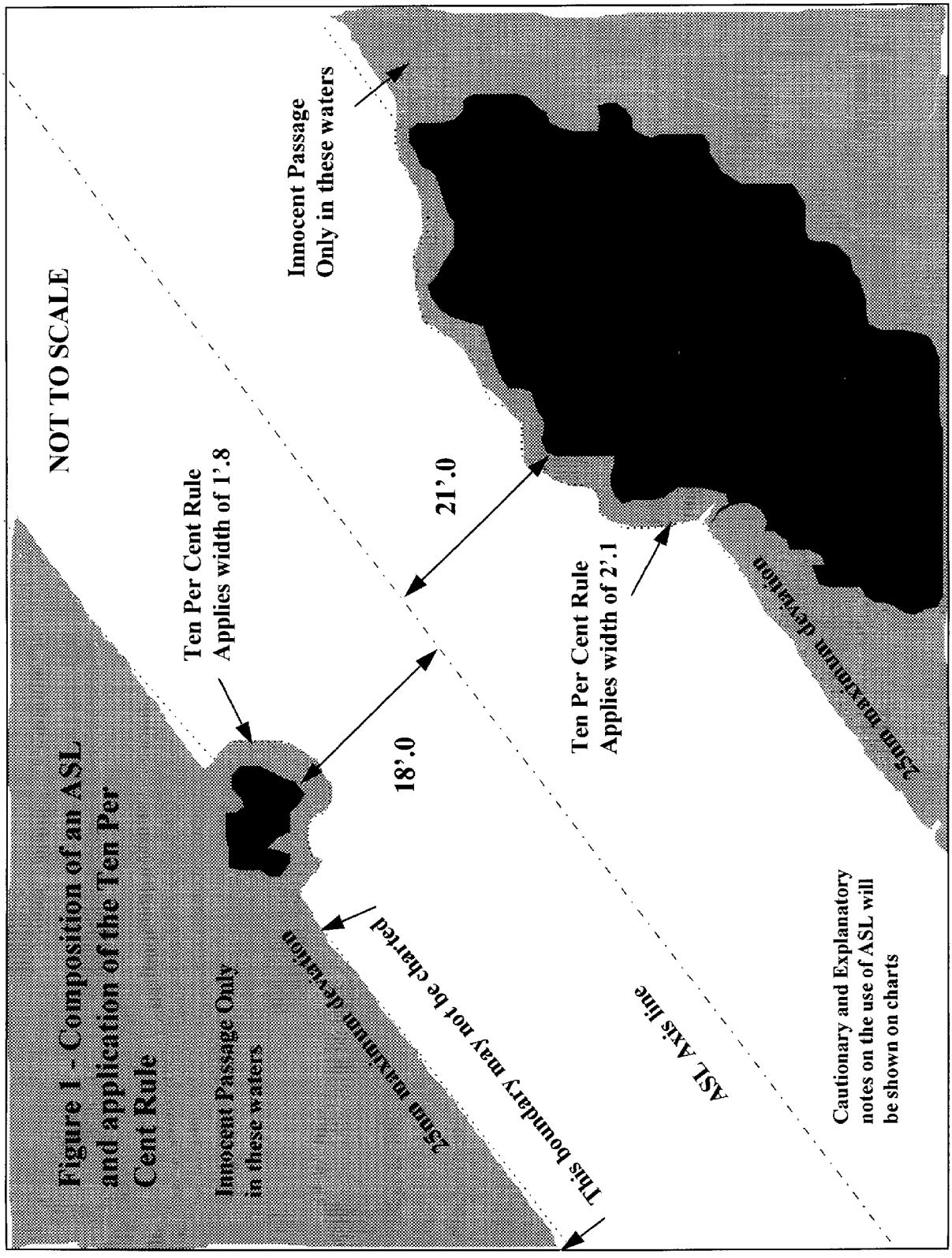


Figure 1 - Composition of an ASL and application of the Ten Per Cent Rule

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ANNEX 12

TERMS OF REFERENCE FOR INCLUDING CONFLICTING ACTIONS IN COLLISION AVOIDANCE IN THE CONSIDERATION OF AMENDMENTS TO THE COLREGs

In collision avoidance the relative high frequency of conflicting actions resulting in collisions, especially in meeting and fine crossing situations, is a cause for concern. Where this involves ships carrying hazardous/dangerous cargoes there are possible grave consequences for loss of life and damage to the marine environment. In view of this the Committee is therefore requested to authorize the Sub-Committee to address the matter with the following terms of reference:

.1 to examine the matter;

.2 to propose solutions which may include amending the Collision Regulations; and

.3 to submit any recommendation to the Committee.

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ANNEX 13

PRELIMINARY DRAFT TEXT OF SOLAS REGULATION V/6 - ICE PATROL SERVICE, MANAGEMENT AND COST RECOVERY

1 Contracting Governments undertake to continue an ice patrol and a service for study and observation of ice conditions in the North Atlantic. During the whole of the ice season the south-eastern, southern and south-western limits of the regions of icebergs in the vicinity of the Grand Banks of Newfoundland shall be guarded for the purpose of informing passing ships of the extent of this dangerous region; for the study of ice conditions in general; and for the purpose of affording assistance to ships and crews requiring aid within the limits of operation of the patrol ships **and aircraft**. During the rest of the year the study and observation of ice conditions shall be maintained as advisable.

2 Ships and aircraft used for the ice patrol service and the study and observation of ice conditions may be assigned other duties by the managing Government, provided that such other duties do not interfere with the primary purpose or increase the cost of this service.

3 The Government of the United States of America agrees to continue the management of the ice patrol service and the study and observation of ice conditions, including the dissemination of information received there from. Contracting Governments **whose ships entitled to fly their flag [benefit from][use][transit the area of] the services,** ~~specially interested in these services~~ undertake to contribute to the expense of maintaining and operating the~~se~~ services~~;~~ **, on the terms and condition set forth in an [Appendix A] adopted, brought into force, taking effect and amended in accordance with the provisions of Article VIII of the present Convention concerning the amendment procedures applicable to [the annexes other than Chapter I][the Articles].**

4 If, at any time, the United States Government should desire **to discontinue providing these services, the Contracting Governments shall settle the question of continuing these services in accordance with their mutual interests. [Add period of notice before its discontinuance is effective.]**

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ANNEX 14

PRELIMINARY DRAFT ASSEMBLY RESOLUTION
adopted on .....

GUIDELINES FOR VOYAGE PLANNING

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

[RECALLING ALSO that the Maritime Safety Committee at its [xx] session adopted by resolution of the [MSC.xx(xx)] Regulation VIII(2) of the International Convention on Standards, Training, Certification, and Watchkeeping for Seafarers (STCW) 1978, as amended in 1995 [and by resolution MSC....(....) Regulation ..... of the International Convention on the Safety of Life at Sea (SOLAS), 1974, as amended] on voyage planning,]

RECALLING FURTHER that the STCW and SOLAS Conventions contain many requirements that are essential to consider in voyage planning including those relating to the officers and crew; shipborne safety management systems; and the vessel and its equipment and systems,

RECOGNIZING THE NEED to update the guidance on voyage planning which is now contained in SN/Circ.92 (23 October 1978),

NOTING that the Assembly in resolution A.790(19) requested the Committee to consider the issue of voyage planning in conjunction with its review of the Code for the Safe Carriage of Irradiated Nuclear Fuel, Plutonium, and High-level Radioactive Wastes in Flasks On Board Ships (INF Code),

NOTING FURTHER the decision by the Maritime Safety Committee that consideration of the issue of voyage planning should not be restricted to those vessels carrying materials subject to the INF Code but should include voyage planning for all ships engaged on international voyages,

HAVING CONSIDERED, at its [.....] session the Guidelines for Voyage Planning developed for this purpose,

1. ADOPTS the Guidelines for Voyage Planning set out in the Annex to this present resolution;

2. INVITES Governments to bring the Guidelines for Voyage Planning as set out in the Annex to this present resolution to the attention of the masters of vessels flying their flag and to advise them to take these Guidelines into account in planning all voyages or passages;

3. REQUESTS the Secretary General to bring this resolution to the attention of all Contracting Governments/ Parties to the SOLAS and STCW Conventions and to Members of the Organization which are not party to those Conventions.

ANNEX

DRAFT GUIDELINES FOR VOYAGE PLANNING

1 Objectives

[1.1 These Guidelines are associated with Regulation xx of the International Convention on the Safety of Life at Sea (SOLAS) 1974, as amended. Voyage planning is also required under Regulation VIII(2) of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 1995 and these guidelines should be taken into account in fulfilling the requirements of this regulation.]

1.2 The development of a plan for voyage or passage as well as the close and continuous monitoring of the vessel's progress and position during the execution of such a plan is of essential importance for the safety of life at sea, the safety and efficiency of navigation, and the protection of the marine environment.

1.3 The need for voyage and passage planning applies to all vessels. There are several factors that may impede the safe navigation of all vessels and additional factors that may impede the navigation of larger vessels or vessels carrying hazardous cargoes. These factors will need to be taken into account in the preparation of the plan and in the subsequent monitoring of the execution of the plan.

1.4 Voyage planning includes appraisal which is the process of gathering all information relevant to the contemplated voyage or passage; the detailed planning of the whole voyage or passage from berth to berth, including those areas where a pilot will be on board; execution of the plan; and the monitoring of the progress of the vessel in the implementation of the plan.

2 Appraisal

2.1 All information relevant to the contemplated voyage or passage should be considered. The following items should be taken into account in voyage planning:

.1 the condition, state of the vessel, and its stability and equipment; any operational limitations; its permissible draught at sea, in fairways, and in ports; and manoeuvring data including any restrictions;

.2 any special characteristics of the cargo especially those which are hazardous, and its distribution, stowage, and securing on board the vessel;

.3 the provision of a competent and well-rested crew to undertake the voyage or passage;

.4 requirements for up-to-date certificates and documents concerning the vessel, its equipment, the crew, passengers, or cargo;

.5 appropriate scale, accurate and up-to-date charts to be used for the voyage or passage as well as any relevant permanent or temporary notices to mariners and existing radio navigational warnings;

.6 accurate and up-to-date sailing directions, lists of lights, and lists of radio aids to navigation; and

.7 any relevant up-to-date additional information, including:

.1 mariners' routeing guides and passage planning charts, published by competent authorities;

.2 current and tidal atlases and tide tables;

.3 climatological, hydrographical, and oceanographic data as well as other appropriate meteorological information;

.4 availability of services for weather routeing (such as that contained in Volume D of the World Meteorological Organization's Publication No. 9);

.5 existing ships' routeing and reporting systems, vessel traffic services, and marine environmental protection measures;

.6 volume of traffic likely to be encountered throughout the voyage or passage;

.7 if a pilot is to be used, information relating to pilotage and embarkation and disembarkation including the exchange of information between master and pilot;

.8 available port information including information pertaining to the availability of shorebased emergency response arrangements and equipment; and

.9 any additional items pertinent to the type of the vessel or its cargo, the particular areas through which the vessel will traverse; and the type of voyage or passage to be undertaken.

2.2 On the basis of the above information, an overall appraisal of the intended voyage or passage should be made. This appraisal should provide a clear indication of all areas of danger; those areas where it will be possible to navigate safely, including any existing routeing or reporting systems and vessel traffic services; and any areas with marine environmental protection considerations.

3 Planning

3.1 On the basis of the fullest possible appraisal, a detailed plan should be prepared and it should cover the entire voyage or passage from berth to berth, including those areas where the services of a pilot will be used.

3.2 The detailed plan should include the following factors:

.1 the plotting of the intended route or track of the voyage or passage on appropriate scale charts: the true direction of the planned route or track should be indicated, as well as all areas of danger, existing ships' routeing and reporting systems, vessel traffic services, and any areas with marine environmental protection considerations;

.2 the main elements to achieve the safety of life at sea, the safety and efficiency of navigation, and the protection of the marine environment during the intended voyage or passage; such elements should include but not be limited to:

.1 safe speed having regard to the proximity of navigational hazards along the intended route or track, the manoeuvring characteristics of the vessel and its draught in relation to the available water depth;

.2 necessary speed alterations en route, e.g., where there may be limitations because of night passage, tidal restrictions, or allowance for the increase of draught due to squat and heel effect when turning;

.3 minimum clearance required under the keel in critical areas with restricted water depth;

.4 positions where a change in machinery status is required;

.5 course alteration points, taking into account the vessel's turning circle at the planned speed and any expected effect of tidal streams and currents;

.6 the method and frequency of position fixing, including primary and secondary options, and the indication of areas where accuracy of position fixing is critical and where maximum reliability must be obtained;

.7 use of ships' routeing and reporting systems and vessel traffic services;

.8 considerations relating to the protection of the marine environment; and

.9 contingency plans for alternative action to place the vessel in deep water or proceed to a port of refuge or safe anchorage in the event of any emergency necessitating abandonment of the plan, taking into account existing shorebased emergency response arrangements and equipment and the nature of cargo and the emergency itself.

3.3 The details of the plan should be clearly marked and recorded, as appropriate, on charts and in a voyage plan notebook, or a computer disk.

3.4 Each voyage plan as well as the details of the plan should be approved by the ships' master prior to the commencement of the voyage or passage.

4 Execution

4.1 Having finalized the voyage or passage plan, as soon as estimated times of arrival can be made with reasonable accuracy, the voyage or passage should be executed in accordance with the plan or any changes made thereto.

4.2 The factors that should be taken into account include:

.1 the reliability and condition of the vessel's navigational equipment;

.2 estimated times of arrival at critical points for tide heights and flow;

.3 meteorological conditions, particularly in areas known to be affected by frequent periods of low visibility and weather routeing;

.4 day-time versus night-time passing of danger points, and any effect this may have on position fixing accuracy; and

.5 traffic conditions, especially at navigational focal points.

4.3 It is important for the master to consider whether any particular circumstance, such as the forecast of restricted visibility in an area where position fixing by visual means at a critical point is an essential feature of the voyage or passage plan, introduces an unacceptable hazard to the safe conduct of the passage; and thus whether that section of the passage should be attempted under the conditions prevailing or likely to prevail. The master should also consider at which specific points of the passage there may be a need to utilize additional deck or engine room personnel.

5 Monitoring

5.1 The plan should be available at all times on the bridge to allow immediate access and reference to the details of the plan.

5.2 The progress of the vessel in accordance with the voyage plan should be closely and continuously monitored. Any changes made to the plan should be made consistent with these Guidelines and clearly marked and recorded.

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ANNEX 15

PRELIMINARY DRAFT SN CIRCULAR

GUIDANCE ON CHART DATUMS AND THE ACCURACY OF POSITIONS ON CHARTS

1At its [.....] session (...), the Maritime Safety Committee, approved guidance on chart datums and the accuracy of positions on charts, given at the annex.

2Member Governments are requested to bring this guidance to the attention of all seafarers for information and action, as appropriate.

ANNEX

GUIDANCE ON CHART DATUMS AND THE ACCURACY OF POSITIONS ON CHARTS

1 Many different definitions of a horizontal datum (also known as geodetic datum) exist. However, a practical working definition in use is:

> *"A horizontal datum is a reference system for specifying positions on the Earth's surface. Each datum is associated with a particular reference spheroid that can be different in size, orientation and relative position from the spheroids associated with other horizontal datums. Positions referred to different datums can differ by several hundred metres."*

2 The practical result is that a given geographical position, not associated with a specific datum, could refer to different physical objects. In other words, a physical object can have as many geographical positions as there are datums. For example, South Foreland Lighthouse, United Kingdom, has the following positions:

GEOGRAPHICAL POSITION	HORIZONTAL DATUM
51°08'.39 N 01°22'.37E	referred to OSGB(36) Datum (the local datum for the United Kingdom)
51°08'.47 N 01°22'.35E	referred to European (1950) Datum (the continental datum)
51°08'.42 N 01°22'.27E	referred to World Geodetic System 1984 (WGS84) Datum (the worldwide datum used by Global Positioning System (GPS))

3 Most charts are not yet referred to WGS84 Datum. This means that, in those cases, positions obtained from satellite navigation receivers will not be directly compatible with the chart and must not be used without adjustment. Hydrographic offices are attempting to refer as many new charts as possible to WGS84, but there remain many areas of the world where information does not exist to enable the transformation to be performed.

4 When known, the horizontal datum of the chart is usually named in the chart title albeit, on its own, this information is of limited benefit to the mariner. Since 1982 many hydrographic offices have been adding "Satellite-Derived Positions" notes (usually situated close to the title) when charts have been revised. This note provides a latitude and longitude adjustment to be applied to positions obtained directly from satellite navigation systems (such as GPS) to make them compatible with the horizontal datum of the chart.

5 The following provides a worked example:

Satellite-Derived Position (WGS84 Datum)	64°22'.00 N 021°30'.00 W
latitude/longitude adjustments	0'.07 S 0'.24 E
Adjusted position (compatible with chart datum)	64°21'.93 N 021°29'.76 W

In this example, the shift equates to approximately 230 metres which can be plotted at scales larger than 1:1,000,000.

6 Where known, these adjustments are an average value for the whole area covered by the chart and are quoted to 2 decimal places of a minute in both latitude and longitude, so that the maximum uncertainty is about 10 metres in both latitude and longitude (0'.005 and 0'.014 will both be rounded to 0'.01). This uncertainty can be plotted at scales larger than 1:30,000 (where it is represented by 0.3 mm on the chart).

7 Inevitably, cases exist where overlapping charts show different latitude or longitude shift values. For example, one chart might show 0'.06 and its neighbour 0'.07; for each individual chart the value will be an average, but in the area common to both charts the value will range from 0'.064 to 0'.066.

8 In the cases where an adjustment cannot be determined because of the lack of knowledge about the relationship between WGS84 Datum and the datum of the chart, the hydrographic office may add a note to that effect warning that adjustments "may be significant to navigation". The largest difference between satellite navigation derived and charted position reported so far is 7 miles in the Pacific Ocean, but even larger undiscovered differences may exist. Where charts do not contain any note about position adjustment it **must** not be assumed that no adjustment is required.

9 Most manufacturers of GPS receivers are now incorporating datum transformations into their software which enable users to (apparently) receive positions referred to datums other than WGS84 Datum. Unfortunately, many cases exist where a single transformation will not be accurate for a large regional datum. For example, the relationship between WGS84 Datum and European Datum (1950) is very different between the north and south of the region, despite the datum name being the same. Therefore, the position transformed to European Datum (1950) in the receiver by means of a Europe -wide average may differ from the WGS84 Datum position output by the receiver, amended to European Datum (1950) by the shift note on an individual chart. In the light of the 100 metre accuracy of the Standard Positioning Service of GPS this may not be significant, but it is an additional source of error and is of major significance if differential GPS (DGPS) is being used for navigation.

10 It must not be assumed that all charts in a region are referred to the regional datum. For example, although most metric charts of mainland European waters are referred to European Datum (1950), many charts are also referred to local datums. Mariners are advised to keep their GPS receiver referred to WGS84 Datum and apply the datum adjustment note from the chart.

11 Apart from the differences in positions between different horizontal datums, two other aspects affect charted positional accuracy. These aspects are:

- the accuracy to which features are surveyed (paragraphs 12 to 16; and
- the accuracy with which they are compiled on to a chart (paragraphs 17 to 21).

Surveying

12 Hydrographic surveys are generally conducted using the best position-fixing technology available at the time. This was limited to accurate visual fixing until the Second World War, but used terrestrial based electronic position fixing (such as Decca, Hifix, Hyperfix and Trisponder) until the 1980s. DGPS is the current standard for most hydrographic surveys.

13 Generally, position fixing for surveying was more accurate than that for navigation in the first two categories, but DGPS is being made more widely available for use by all mariners with the appropriate equipment. The result is that current navigation with DGPS is, commonly, more accurate than position-fixing used for surveys conducted longer ago than 15 years. The consequence is that, although a modern vessel may know its position to an accuracy of better than 10 metres, the positions of objects on the seabed may only be known to an accuracy of 20 metres or much worse, depending on the age of the latest survey and/or its distance from the coast.

14 Furthermore it is only comparatively recently (the last 20 years or less) that surveying systems have had the computer processing capacity to enable the observations to be analysed to enable an estimate of the accuracy of position fixing to be generated. The result is that, although the current accuracy standard of position fixing surveys can be stated (see para 15 below), it is impossible to provide anything other than general estimates for older surveys.

15 The current accuracy standard for positioning is 13 metres for most surveys with the standard of $\pm$5 metres (both 95% of the time) for certain special purpose surveys. It can be confidently stated that the former value is often significantly improved upon. Further improvements will undoubtedly be made as a result of technological developments, but at present there has to be a balance between the cost of a survey and the quality and quantity of the results achieved.

16 In summary, although the positions of maritime objects derived from modern surveys will be accurate to better than 10 metres, this cannot be used as a general statement about all such objects.

Chart compilation

17 Most paper charts and their derived digital versions are assembled from a variety of sources such as maps,. surveys, photogrammetric plots etc. The intention is to provide the mariner with the best available information for all parts of that chart and the usual procedure is to start with the most accurate sources, but it is often impossible to complete the whole chart without resource to older, less accurate, sources. When sources are referred to different datums, transformations have to be calculated and applied to make the sources compatible. The intention is for such transformations to have an accuracy of 0.3 mm at chart scale, this being the effective limit of manual cartography, but, depending on the information available, this may not always be possible.

18 When the positions of objects critical to navigation are accurately known, the intention is that they are located on a chart to an accuracy of 0.3 mm. The obvious consequence is that accuracy varies with chart scale:

0.3 mm at a scale of 1:10,000 is 3 metres
0.3 mm at a scale of 1:50,000 is 15 metres
0.3 mm at a scale of 1:150,000 is 45 metres

19 The situation will change as chart data becomes available digitally, but much of the early digital data will be derived from these paper charts and the limitations will remain. Furthermore, a pixel on a computer display screen is approximately 0.2 mm square, roughly equivalent to the accuracy available on the paper chart.

20 The situation for mariners **is** improving with recent surveys referred directly to WGS84 Datum, increasing numbers of charts referred to WGS84 Datum (or to North American Datum 1983 which is the same to all practical purposes) and increased international co-operation in the exchange of information. Unfortunately, it will be many years before all areas are re-surveyed and all charts revised.

21 Until that happens, mariners should remain alert to danger. A satellite navigation receiver may output a position to a precision of three decimal places of a minute, but that does not mean that all its positions are accurate to 2 metres or that the resulting position is compatible with the positions of objects shown on modern charts (paper or digital) which may have been established 100 years ago and not surveyed since. The chart title notes and cautions and the source Diagram, which shows the ages of surveys must always be consulted for indications of limitations.

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ANNEX 16

DRAFT SN CIRCULAR

DIFFERENCES BETWEEN RCDS AND ECDIS

1 The Maritime Safety Committee, at its seventieth session (..... 1998), adopted amendments to the performance standards for Electronic Chart Display and Information Systems (ECDIS) to include the use of Raster Chart Display Systems (RCDS).

2 These amendments permit ECDIS equipment to operate in two modes:

.1 the ECDIS mode when ENC data is used; and

.2 the RCDS mode when ENC data is not available.

However, the RCDS mode does not have the full functionality of ECDIS, and can be only used with appropriate folio of up-to-date paper charts.

3 The mariners' attention is therefore drawn to the following limitations of the RCDS mode:

.1 unlike ECDIS where there are no chart boundaries, RCDS is a chart-based system similar to a portfolio of paper charts;

.2 RNC data, itself, will not trigger automatic alarms (e.g. anti-grounding). However, some alarms can be generated by the RCDS from user-inserted information. These can include:

- clearing lines
- ship safety contour lines
- isolated dangers
- danger areas

.3 horizontal datums and chart projections may differ between RNCs. Mariners should understand how the chart horizontal datum relates to the datum of the position fixing system. In some instances, this may appear as a shift in position. This difference may be most noticeable at grid intersections and during route monitoring;

.4 chart features cannot be simplified or removed to suit a particular navigational circumstance or task at hand. This could affect the superimposition of radar/ARPA;

.5 without selecting different scale charts, the look-ahead capability may be somewhat limited. This may lead to some inconvenience when determining range and bearing or the identity of distant objects;

.6 orientation of the RCDS display to other than chart-up, may affect the readability of chart text and symbols (e.g., course-up, route-up);

.7 it may not be possible to interrogate RNC features to gain additional information about charted objects;

.8 it is not possible to display a ship's safety contour or safety depth and highlight it on the display, unless these features are manually entered during route planning;

.9 depending on the source of the RNC, different colours may be used to show similar chart information. There may also be differences in colours used during day and nighttime;

.10 an RNC should be displayed at the scale of the paper chart. Excessive zooming in or zooming out can seriously degrade RCDS capability. For example, by degrading the legibility of the chart image; and

.11 mariners should be aware that in confined waters, the accuracy of chart data (i.e., paper charts, ENC or RNC data) may be less than that of the position-fixing system in use. This may be the case when using differential GNSS. ECDIS provides an indication in the ENC which allows a determination of the quality of the data.

3 Member Governments are requested to bring this information to the attention of the appropriate authorities and all seafarers for guidance and action, as appropriate.

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ANNEX 17

DRAFT RESOLUTION MSC...(70)

(adopted on .. December 1998)

ADOPTION OF NEW AND AMENDED PERFORMANCE STANDARDS

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.825(19), by which the Assembly resolved that the functions of adopting performance standards for radio and navigational equipment, as well as amendments thereto, shall be performed by the Maritime Safety Committee on behalf of the Organization,

HAVING CONSIDERED new performance standards and amendments to existing performance standards adopted by the Assembly and prepared by the forty-fourth session of the Sub-Committee on Safety of Navigation,

1. ADOPTS the following new recommended performance standards, set out in Annexes 1 to 3 to the present resolution:

(a) Recommendation on Performance Standards for Sound Reception Systems (Annex 1);

(b) Recommendation on Performance Standards for Marine Transmitting Magnetic Heading Devices (TMHD) (Annex 2); and

(c) Recommendation on Performance Standards for an Integrated Navigation System (Annex 3);

2. ALSO ADOPTS the amendments to the Recommendation on Performance Standards for Electronic Chart Display and Information Systems (ECDISs) resolution A.817(19) set out in Annex 4 to the present resolution.

3. RECOMMENDS Member Governments to ensure that:

(a) sound reception systems, marine transmitting heading devices and integrated navigation systems installed on or after [1 January 2000] conform to performance standards not inferior to those set out in the Annexes 1 to 3 to the present resolution;

(b) ECDIS installed on or after [1 January 2000] conform respectively to performance standards not inferior to those set out in resolution A.817(19), as amended, and Annex 4 to the present resolution;

(c) ECDIS installed on 1 January 1999 and before [1 January 2000] conform at least to the performance standards set out in resolution A.817(19), as amended by resolution MSC.64(67), Annex 5;

(d) ECDIS installed before 1 January 1999 conform at least to performance standards set out in resolution A.817(19).

ANNEX 1

DRAFT RECOMMENDATION ON PERFORMANCE STANDARDS FOR SOUND RECEPTION SYSTEMS

1 INTRODUCTION

1.1 Sound reception systems are acoustical electronic navigational aids to enable the officer on the watch to hear outside sound signals inside a totally enclosed bridge in order to perform the look-out function as required in the International Regulations for Preventing Collisions at Sea, 1972.

1.2 Sound reception systems should, in addition to the general requirements contained in resolution A.694(17), comply with the following minimum requirements.

2 FUNCTIONAL REQUIREMENTS

2.1 Sound reception systems should be capable of:

.1 receiving sound signals from all directions in the audio band 70 Hz - 820 Hz;

.2 reproducing incoming sound signals acoustically inside the bridge;

.3 indicating the approximate direction of incoming sound signals to determine at least whether the sound signal being detected is forward or abaft of the beam and from which side of the ship it is being detected;* and

.4 suppressing unwanted background noise and allowing reception of meaningful sounds.

3 METHOD OF PRESENTATION

3.1 Incoming sound signals should be reproduced inside the bridge by means of at least one loudspeaker.

3.2 The volume should be adjusted by means of one volume control only. The volume control should be capable of being set so that the sound pressure level of an incoming signal only is at least 10 dB(A) above the bridge noise level.

3.3 There should be a display which gives a visual indication for at least 3 s of the incoming signals and their approximate direction.

*This may be accomplished by means of at least four microphones and separate reception channels.

4 INSTALLATION

4.1 The microphones should be installed in such a way that they are as far from noise sources in the ship as is reasonably practicable and wind induced noise and mechanical vibrations are reasonably reduced.

4.2 The display should be installed so that it is visible at least from the conning position.

4.3 The loudspeaker(s) should be installed so that incoming sound signals are audible at all positions inside the bridge.

ANNEX 2

DRAFT RECOMMENDATION ON PERFORMANCE STANDARDS FOR MARINE TRANSMITTING MAGNETIC HEADING DEVICES (TMHDs)

1 SCOPE

1.1 A TMHD is an electronic device which uses the geomagnetic field to obtain and transmit information about the ship's heading.

1.2 In addition to the general requirements contained in resolution A.694(17)* all marine TMHD equipment should comply with the following minimum requirements.

2 APPLICATION

2.1 A TMHD complying with the requirements contained in this recommendation, can be used to meet the carriage requirements for a suitable device providing heading information contained in Chapter V of the SOLAS Convention.

2.2 In addition such THMD can meet the dynamic requirements contained in the HSC Code chapter 13 for the carriage of a suitable device providing heading information.

3 COMPOSITION

3.1 Transmitting magnetic heading devices (TMHD) may comprise of:

.1 a standard magnetic compass equipped with a magnetic sensor and electronics for generating a suitable output signal for other devices. The compass used should be the standard magnetic compass provided under SOLAS chapter V; or

.2 an electromagnetic compass consisting of the sensor part and electronics for generating a suitable output signal for other devices; or

.3 any type as defined under .1 and .2 additionally equipped with a rate gyro to improve dynamic performance.

4 CONSTRUCTION

4.1 Fore-and-aft mark

4.1.1 A fore-and-aft mark should be inscribed on the magnetic sensor housing, which should be installed in parallel to the ship's fore-and-aft line.

*See also IEC 60945

4.1.2 The accuracy of the fore-and-aft mark should be within ± 0.5° to the fore-and-aft direction of the housing.

4.1.3 If a rate gyro is installed it should be marked in the same way and additionally be marked with top or bottom.

4.2 **Fitting**

4.2.1 Provision should be made, in the mounting arrangements of the magnetic sensor, for correction of any misalignment, up to ± 5°, with respect to the fore-and-aft line.

4.2.2 The fitting of the sensor arrangement to the compass in paragraph 3 .1 above should still enable the compass to comply with resolution A.382(X) with particular reference to accuracy, gimbling and use of the azimuth reading device.

4.3 **Compensation of deviation and heeling error**

Provision should be made to correct the deviation and heeling error and it should be possible to correct the following values:*

.1 vertical component of the ship's magnetic field (producing the heeling error): up to ±75 μT;

.2 coefficient A: up to ±3°;

.3 coefficient B: up to ±(720/H)°;

.4 coefficient C: up to ±(720/H)°;

.5 coefficient D: up to ±7°; and

.6 coefficient E: up to ± 3°,

where H is the horizontal component of the geomagnetic flux density in microteslas (μT).

4.3.1 **Indication of compensation**

The values used for electronic compensation should be indicated by adequate means and should be stored such that values are automatically recovered on switch-on.

4.3.2 **Protection of compensation**

The compensating devices should be protected against inadvertent operation.

*ISO 11606, ISO 1069

4.4 **Heading output**

All displays and outputs of heading should indicate true heading. An indication of any deviation and variation applied to compensate the heading should be capable of being displayed or included in the output.

4.5 **Interfaces**

The TMHD should be so designed to transmit heading information to other equipment. At least one output should be in accordance with the relevant international marine interface standard.*

5 **PERFORMANCE**

The following performance standards are required to be achieved under the conditions of a value of 18 µT of the horizontal component of the geomagnetic field and the environmental conditions experienced on board ships.**

5.1 **Accuracy of heading**

5.1.1 **Static**

The static accuracy of the heading indication should be within ± 1.0°.

5.1.2 **Dynamic**

The dynamic accuracy of the heading indication or output should be within ± 1.5° in addition to the static accuracy as defined. Periods of oscillation of the error shall not be shorter than 30 s under the conditions of various sea states and ship's motion likely to be experienced in ships.***

5.2 **Follow-up accuracy of the transmission system**

The follow-up accuracy of the transmission system should be within ± 1.5°, when the sensor is rotated at a rate of 20°/s.

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*IEC 61162

**IEC 60945

***IEC 721-3-6

6 ELECTROMAGNETIC COMPATIBILITY

The compass system, with regard to electromagnetic interference and immunity, should, in addition to resolution A.694(17), comply with resolution A.813(19).*

7 FAILURE CONDITIONS

An alarm should be provided to indicate a failure of the power supply to the compass system.

*IEC 60945 and IEC 533

ANNEX 3

DRAFT RECOMMENDATION ON PERFORMANCE STANDARDS FOR AN INTEGRATED NAVIGATION SYSTEM (INS)

1 Scope

1.1 The purpose of an integrated navigation system (INS) is to provide 'added value' to the functions and information needed by the officer in charge of the navigational watch (OOW) to plan, monitor or control the progress of the ship.

1.2 The INS supports mode and situation awareness.

1.3 The INS supports safety of navigation by evaluating inputs from several independent and different sensors, combining them to provide information giving timely warnings of potential dangers and degradation of integrity of this information. Integrity monitoring is an intrinsic function of the INS.

1.4 The INS aims to ensure that, by taking human factors into consideration, the workload is kept within the capacity of the OOW in order to enhance safe and expeditious navigation, and to complement the mariner's capabilities, while at the same time to compensate for their limitations.

1.5 The function of passage execution in an Integrated Bridge System (lBS), as defined by the Organization*, may be performed by an INS.

2 Application

2.1 This performance standard is applicable to any combination of navigational aids that provides functions beyond the general intent defined in the respective performance standards adopted by the Organization for individual equipment.

2.2 The purpose of this performance standard is to support the proper and safe integration of navigational equipment and information.

2.3 This performance standard defines three categories of INS:

2.3.1 INS(A) for systems that provide the minimum functional requirements of the INS including a consistent common reference system;

2.3.2 INS(B) for systems that, in addition to the functional requirements of INS(A), provide the information needed for decision support in avoiding hazards;

2.3.3 INS(C) for systems that, in addition to the functional requirements of INS(B), provide the automatic control functions of heading, track or speed.

*IMO resolution MSC.64(67) Annex 1- Integrated Bridge Systems

3 Definitions

For the purpose of this standard the following definitions apply.

3.1 **Automatic control system** - A control system that may include a heading, track or speed control system.

3.2 **Consistent common reference system** - A sub-system of an INS for acquisition, processing, storage and distribution of data and information providing identical and obligatory reference to sub-systems within an INS.

3.3 **Integrated navigation system** - An INS is a combination of systems that are interconnected to increase safe and efficient navigation by suitably qualified personnel.

3.4 **Integrity -** Ability of the system to provide the user with information within the specified accuracy in a timely, complete and unambiguous manner, and alarms and indications within a specified time when the system should be used with caution or not at all.

3.5 **Multifunction display** - A single visual display unit that can present, either simultaneously or through a series of selectable pages, information from more than one operation of a system.

3.6 **Sensor** - A navigational aid, with or without its own display and control as appropriate, automatically providing information to the INS.

4 Operational requirements

4.1 Functionality

4.1.1 General

4.1.1.1 In addition to meeting the relevant requirements of resolution A.694(17)*, the INS should comply with the requirements of this performance standard.

4.1.1.2 Each part of the INS should comply with all applicable requirements adopted by the Organization, including the requirements of this performance standard. Parts executing multiple operations should meet the requirements specified for each individual function they can control, monitor or perform.

4.1.1.3 When functions or equipment connected to the INS provide facilities in addition to this performance standard, the operation and, as far as is reasonably practicable, the malfunction of such additional facilities should not degrade the performance of the INS below the requirements of this standard.

4.1.1.4 A failure of one part should not affect other parts except for those functions directly dependent upon the information from the defective part.

* IEC 60945

4.1.2 Basic functions

4.1.2.1 An INS should combine, process and evaluate data from all sensors in use. The integrity of data from different sensors should be evaluated prior to distribution.

4.1.2.2 An INS should ensure that the different types of information are distributed to the relevant parts of the system, applying a 'consistent common reference system' for all types of information.

4.1.2.3 The INS(A) should as a minimum provide the information of position, speed, heading and time, each clearly marked with an indication of integrity.

4.1.2.4 The INS(B) should be able to automatically, continually and graphically indicate the ship's position, speed and heading and, where available, depth in relation to the planned route as well as to known and detected hazards.

4.1.2.5 The INS(C) should, in addition, provide means to automatically control heading, track or speed and monitor the performance and status of these controls.

4.1.3 Integrity monitoring

4.1.3.1 The integrity of information should be verified by comparison of the data derived independently from two or more sources if available.

4.1.3.2 The integrity should be verified before essential information is displayed or used. Information with doubtful integrity should be clearly marked by the INS and should not be used for automatic control systems.

4.1.4 Data exchange

4.1.4.1 Stand-alone equipment for which performance standards adopted by the Organization exist, when connected to the INS, should comply with the applicable International Standards[*] for data exchange and interfacing.

4.1.4.2 Data latency should be consistent with the data requirements of the individual parts.

4.1.4.3 The integrity of data exchange within the INS should be ensured.

4.1.4.4 A failure of data exchange should not affect any independent functionality.

4.1.5 Integration

The INS should provide functional integration meeting the following requirements:

4.1.5.1 Where a display or control is presented on a multifunction display unit then these should be redundantly available.

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[*] IEC 61162 Series

4.1.5.2 Validity* of the data should be provided for each part to be integrated.

4.1.6 Configuration control

It should be possible to display the complete system configuration, the available configuration. and the configuration in use.

4.2 Information and accuracy

4.2.1 Display of information

4.2.1.1 The INS should be able to display the information available in accordance with paragraphs 4.1.2.3, 4.1.2.4 and 4.1.2.5 as applicable.

4.2.1.2 The INS should be capable of displaying output data available from the sensors.

4.2.1.3 The information should be displayed together with the indication of its source (sensor data, result of calculation or manual input), unit of measurement and status, including mode (see sub-section 4.1.3 Integrity monitoring).

4.2.2 Accuracy

As a minimum, the accuracy of information should meet the requirements of the resolutions* adopted by the Organization. Additionally the INS should not degrade the accuracy of the data provided by the sensors.

4.3 Malfunctions, alarms and indications

4.3.1 Fail safe operation

The system's automatic response to malfunctions should result in the safest of any other configuration accompanied by clear indications and alarms.

4.3.2 Reversionary mode

The INS should allow simple and effective operator action to override or by-pass any automated functions. The INS should resume automatic functions only after an appropriate message and intended operator action, considering all necessary starting conditions.

*IMO resolutions A.529(13) and A.815(19)

4.3.3 Alarm management

4.3.3.1 An alarm management system should be provided.

4.3.3.2 The INS alarm management system, as a minimum should comply with the requirements of the Organization.*

4.3.3.3 The number of alarms should be kept as low as possible by providing indications for information of lower importance.

4.3.3.4 Alarms should be displayed so that the alarm reason and the resulting functional restrictions can be easily understood. Indications should be self-explanatory.

5 Ergonomic criteria

5.1 Cognitive ergonomics

5.1 1 Integrated display and control functions should adopt a consistent human machine interface (HMI) philosophy and implementation.

5.1.2 The HMI should be so designed that the provided information is clearly understood using a consistent presentation style.

5.1.3 The HMI should be so designed that the requested manual inputs can be easily executed.

5.1.4 For manual inputs that may cause unintended results, the INS should request confirmation before acceptance, thus providing a plausibility check.

5.2 Physical ergonomics

5.2.1 Controls and displays

Particular consideration should be given to:

- symbols
- controls; and
- layout.

5.2.2 Operational controls

The INS should be designed and implemented so that the OOW easily operates basic functions from work stations.

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*IMO resolution A.830(19)

5.2.3 Presentation of information

Continuously displayed information should be optimised and should include position, speed, heading and time. Supplementary information should be readily accessible.

6 Design and installation

6.1 General

The INS should meet the relevant requirements of resolution A.694(17)[*].

6.2 Failure analysis

A failure analysis[**] should be performed and documented for the installed configuration of the INS which includes all parts connected to or integrated into the system, including devices for manual override of automatic functions and their locations on the bridge.

6.3 Installation requirements

The INS should be installed so that it can meet the requirements of the relevant International Standards[***].

6.4 Power supply

6.4.1 Power supply requirements

6.4.1.1 Power supply requirements applying to parts of the INS as a result of other IMO requirements should remain applicable.

6.4.1.2 The INS should be supplied:

.1 from both the main and the emergency source of electrical power with automated changeover through a local distribution board with provision to preclude inadvertent shutdown; and

.2 from a transitional source of electrical power for a duration of not less than 45 s.

6.4.2 Power interruptions and shutdown

6.4.2.1 After a power interruption full functionality of the INS should be available after recovery of all subsystems. The INS should not increase the recovery time of individual subsystem functions after power restoration.

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[*] IEC 60945

[**] IEC 61508

[***] IEC 92-101 and IEC 533

6.4.2.2 If subjected to a power interruption the INS should, upon restoration of power, maintain the configuration in use and continue automated operation, as far as practicable. Safety related automatic functions, should only be restored upon confirmation by the operator.

7 Interfacing

Interfacing to, and from, the INS should comply with International Standards[*], as appropriate.

8 Fall-back arrangements

8.1 The INS should, after a failure, support the availability of essential information through the use of appropriate fallback arrangements.

8.2 Normal operation, after use of a fall-back arrangement, should only be restored upon confirmation by the operator.

[*] IEC 61162 Series

ANNEX 4

DRAFT AMENDMENTS TO THE ANNEX TO RESOLUTION A.817(19) -

PERFORMANCE STANDARDS FOR ELECTRONIC CHART DISPLAY AND INFORMATION SYSTEMS (ECDISs)

Add a new paragraph 1.9

1.9 When the relevant chart information is not available in the appropriate form (see section 4), some ECDIS equipment may operate in the Raster Chart Display System (RCDS) mode as defined in Appendix 7. Unless otherwise specified in Appendix 7, the RCDS mode of operation should conform to performance standards not inferior to those set out in this Annex.

Modify paragraph 10.5.7 as follows:

10.5.7 ECDIS should provide an alarm when the input from the position-fixing system is lost. ECDIS should also repeat, but only as an indication, any alarm or indication passed to it from a position-fixing system.

In Appendix 5, paragraph 10.5.7 change the word "indication" to "alarm".

Add a new Appendix 7 to the Annex to the resolution:

APPENDIX 7

RCDS MODE OF OPERATION

Whenever in this appendix reference is made to provisions of the Annex related to ECDIS, ECDIS should be substituted by RCDS, SENC by SRNC and ENC by RNC, as appropriate.

All paragraphs of the Annex related to ECDIS are indicated as to whether they apply to RCDS, do not apply to RCDS, or are modified in order to apply to RCDS. These paragraphs are followed by additional requirements for ECDIS equipment in the RCDS mode.

1 INTRODUCTION

1.1 Paragraph applies to RCDS.

1.2 When operating in the RCDS mode, ECDIS equipment should be used together with an appropriate portfolio of up-to-date paper charts.

1.3-1.7 Paragraphs apply to RCDS.

1.8 RCDS should provide appropriate alarms or indications with respect to the information displayed or malfunction of the equipment (see Table 1 of this Appendix).

2 DEFINITIONS

2.1 Raster Chart Display System (RCDS) means a navigation information system displaying RNCs with positional information from navigation sensors to assist the mariner in route planning and route monitoring and, if required, display additional navigation-related information.

2.2 Raster Navigational Chart (RNC) means a facsimile of a paper chart originated by, or distributed on the authority of, a government-authorized hydrographic office. RNC is used in these standards to mean either a single chart or a collection of charts.

2.3 System Raster Navigational Chart Database (SRNC) means a database resulting from the transformation of the RNC by the RCDS to include updates to the RNC by appropriate means.

2.4-2.5 Paragraphs do not apply to RCDS.

2.6 Paragraph applies to RCDS.

3 DISPLAY OF SRNC INFORMATION

3.1 Paragraph applies to RCDS.

3.2 SRNC information available for display during route planning and route monitoring should be subdivided into two categories:

.1 the RCDS standard display consisting of RNC and its updates, including its scale, the scale at which it is displayed, its horizontal datum, and its units of depths and heights; and

.2 any other information such as mariner's notes.

3.3 Paragraph applies to RCDS.

3.4 When a RNC is displayed on the RCDS, it should provide an indication advising the mariner if a more detailed (larger scale) RNC is available for the displayed area.

3.5 It should be easy to add to, or remove from, the RCDS display any information additional to the RNC data, such as mariner's notes. It should not be possible to remove any information from the RNC.

3.6-3.7 Paragraphs do not apply to RCDS.

3.8-3.10 Paragraphs apply to RCDS.

3.11 There should always be an indication if the ECDIS equipment is operating in the RCDS mode.

4 PROVISION AND UPDATING OF CHART INFORMATION

4.1 The RNC used in RCDS should be the latest edition of that originated by, or distributed on the authority of, a government authorized hydrographic office and conform to IHO standards. RNCs not on WGS-84 or PE-90 should carry meta-data (i.e., additional data) to allow geo-referenced positional data to be displayed in the correct relationship to SRNC data.

4.2 The contents of the SRNC should be adequate and up-to-date for that part of the intended voyage not covered by ENC.

4.3-4.8 All paragraphs apply to RCDS.

5 SCALE

This section applies to RCDS.

6 DISPLAY OF OTHER NAVIGATIONAL INFORMATION

6.1-6.3 All paragraphs apply to RCDS.

7 DISPLAY MODE AND GENERATION OF THE NEIGHBOURING AREA

7.1 It should always be possible to display the RNC in "chart-up" orientation. Other orientations are permitted.

7.2-7.4 All paragraphs apply to RCDS.

8 COLOURS AND SYMBOLS

8.1 IHO recommended colours and symbols should be used to represent SRNC information.

8.2 Paragraph applies to RCDS.

8.3 Paragraph does not apply to RCDS.

8.4 Paragraph applies to RCDS.

9 DISPLAY REQUIREMENTS

9.1-9.2 Paragraphs apply to RCDS.

9.3 Paragraph does not apply to RCDS.

9.4 Paragraph applies to RCDS.

9.5 RCDS should be capable of displaying, simply and quickly, chart notes which are not located on the portion of the chart currently being displayed.

10	**ROUTE PLANNING, MONITORING AND VOYAGE RECORDING**
10.1-10.2	Paragraphs apply to RCDS.
10.3	Paragraph does not apply to RCDS.
10.4	Route Planning
10.4.1-10.4.3	Paragraphs apply to RCDS.
10.4.4-10.4.5	Paragraphs do not apply to RCDS.
10.4.6	Paragraph applies to RCDS.
10.4.7	It should be possible for the mariner to enter points, lines and areas which activate an automatic alarm. The display of these features should not degrade the SRNC information and it should be clearly distinguishable from the SRNC information.
10.5	Route monitoring
10.5.1	Paragraph applies to RCDS.
10.5.2	It should be possible to display a sea area that does not have the ship on the display (e.g. for look ahead, route planning), while route monitoring. If this is done on the display used for route monitoring, the automatic route monitoring functions in 10.4.6 and 10.4.7 should be continuous. It should be possible to return to the route monitoring display covering own ship's position immediately by single operator action.
10.5.3-10.5.4	Paragraphs do not apply to RCDS.
10.5.5-10.5.8	Paragraphs apply to RCDS.
10.5.9	The RCDS should only accept data referenced to the WGS-84 or PE-90 geodetic datums. RCDS should give an alarm if the positional data is not referenced to one of these datums.
10.5.10-10.5.13	Paragraphs apply to RCDS.
10.5.14	RCDS should allow the user to manually align the SRNC with positional data. This can be necessary, for example, to compensate for local charting errors.
10.5.15	It should be possible to activate an automatic alarm when the ship crosses a point, line, or is within the boundary of a mariner-entered feature within a specified time or distance.
10.6	Voyage recording
10.6.1-10.6.4	All paragraphs apply to RCDS.

11 ACCURACY

11.1-11.2 All paragraphs apply to RCDS.

12 CONNECTIONS WITH OTHER EQUIPMENT

12.1-12.2 All paragraphs apply to RCDS.

13 PERFORMANCE TESTS, MALFUNCTION ALARMS AND INDICATIONS

13.1-13.2 All paragraphs apply to RCDS.

14 BACK-UP ARRANGEMENTS

All paragraphs apply to RCDS.

15 POWER SUPPLY

15.1-15.2 All paragraphs apply to RCDS.

Table 1

ALARMS AND INDICATIONS IN THE RCDS MODE OF OPERATION

Paragraph	Requirement	Information
10.4.6, 10.5.5	Alarm	Deviation from route
10.4.7, 10.5.15	Alarm	Approach to critical point, line, area or mariner-entered feature
10.5.7	Alarm	Positioning system failure
10.5.8	Alarm	Approach to critical point
10.5.9	Alarm	Different geodetic datum
13.2	Alarm	Malfunction of RCDS mode
3.11	Indication	ECDIS operating in the raster mode
3.4, 5.1	Indication	Information under-scale or overscale
5.2	Indication	Larger scale RNC available for the area of the vessel

The definitions of indicators and alarms are given in Appendix 5.

***

ANNEX 18

LIAISON STATEMENT FROM IMO TO ITU-R WORKING PARTY 8B

1 The IMO Sub-Committee on Safety of Navigation, at its forty-fourth session (20 to 24 July 1998), noted the amended question Q.216/8 concerning the technical compatibility of radionavigation systems and radio location systems operating in the band 2.9-3.3 GHz.

2 The Sub-Committee wishes to inform the Working Party that this band is an important band for maritime radars involving a SOLAS carriage requirement for many ships. Maritime radars operate on a nominal frequency of 3.05 GHz and it will be very difficult to change to another frequency, as well as requiring a considerable time span. There are also large numbers of fixed RACONS operating around coastlines.

3 In the interests of safety at sea IMO has recently improved the Performance Standards for maritime radars which has created a need for the use of shorter pulse widths. This in time may increase the out of band emissions produced by marine radars which will fall in the band 2.9-3.3 GHz and which need to be taken into account in compatibility studies with other radars.

4 The Sub-Committee further noted Recommendation ITU-R SM.329-7 on spurious emissions. Two categories are included - Category A which applies to maritime mobile radars Category B which may apply to maritime fixed radar for Vessel Traffic Services (VTS). The Sub-Committee would like to point out that VTS radars are maritime mobile radars adapted as appropriate to the VTS environment. It is therefore illogical that maritime mobile radars, used for safety purposes, meeting the Category A limits of 60 dB (- 13 dBm) when used in a VTS should be required to meet Category B limits of 100 dB (- 30 dBm). Enforcement of such limits would lead to a significant increase in costs of VTS systems.

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ANNEX 19

PRELIMINARY DRAFT AMENDMENTS TO THE COLREGs WITH RESPECT TO WING-IN-GROUND (WIG) CRAFT

1 *Rule 3 - General definitions*

1.1 Amend paragraph (a) as follows:

*(a) The word "vessel" includes every description of water craft, including non-displacement craft, **WIG-craft** and seaplanes, used or capable of being used as a means of transportation on water.*

1.2 Add a new paragraph (m) as follows:

(m) The word "WIG craft" means a multimodes high-speed craft on dynamic air cushion, which at the main operational mode of flight near the water surface or some other surface, is supported in the air mainly by an aerodynamic lift generated on an air foil (foils) utilising the effect resulting from the proximity of such a surface.

2 ***Rule 18***

2.1 Add a new paragraph (f) as follows:

(f) WIG Craft when taking-off, landing and flight near the water surface shall keep well clear of all vessels and avoid impeding their navigation. A WIG craft operating in any mode other than specified above shall where risk of collision exists comply with the Rules of this part.

3 *Rule 23*

3.1 Amend paragraph (b) as follows:

*(b) An air-cushion vessel **and WIG Craft on the water** when operating in the non-displacement mode shall, in addition to the lights prescribed in paragraph (a) of this Rule, exhibit an all-round flashing yellow light.*

3.2 [Add a new paragraph (c) as follows:

(c) The WIG Craft during take-off, landing and flight near the water surface, in addition to mentioned above all-round flashing yellow light, shall exhibit an all-round flashing red light.]

4 *Rule 31 - Seaplanes **and WIG craft***

4.1 Amend Rule 31 as follows:

*Where it is impracticable for a seaplane **or a WIG craft** to exhibit lights and shapes of the characteristics or in the positions prescribed in the Rules of this Part she shall exhibit lights and shapes as closely similar in characteristics and position as is possible.*

***

Bold = new text.

ANNEX 20

PROPOSED AMENDMENTS TO CHAPTER 13 OF THE HIGH-SPEED CRAFT CODE

1 Paragraph 13.2 Compasses

In paragraph 13.2.5 end of second line replace the word "instrument" by "electromagnetic compass including rate gyro".

In paragraph 13.2.5 delete the end of the sentence “providing a heading reference of accuracy superior to that provided by a magnetic compass“ and replace with “capable of transmitting a true heading reference to other equipment”.

2 Paragraph 13.3. Speed and distance measurement

In paragraph 13.3.2 after ‘automatic radar plotting aid’ add the words ‘and automatic tracking aid’.

3 Paragraph 13.5 Radar Installations

Paragraph 13.5.2

Paragraph 13.5.2, in the first sentence, the following is added after the word "installations";

", each being capable of being operated independently of the other".

Paragraph 13.5.3

Delete the present paragraph 13.5.3 and add new paragraph 13.5.3.

13.5.3. ‘At least one radar should be provided with facilities for an Automatic Tracking Aid (ATA) suitable for the motion and speed of the craft’.

4 Paragraph 13.7 Rate-of-turn indicator and rudder angle indicator

Paragraph 13.7.1, the first sentence is replaced by the following:

"Craft of 500 GT or upwards should have a rate-of-turn indicator. A rate-of-turn indicator should be provided if the test according to annex 8 shows that the turn rate can exceed safety level 1."

5 Paragraph 13.9 Searchlight

Existing paragraph 13.9.2 should be retained as paragraph 8.2.3.1 is the provision for communication purpose while in Chapter 13 it is for the navigational equipment. In addition insert the word "daylight" between "portable" and "signalling lamp" in the first line of paragraph 13.9.2.

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ANNEX 21

DRAFT MSC CIRCULAR

GUIDELINES FOR THE ON-BOARD USE AND APPLICATION OF COMPUTERS

1 The Maritime Safety Committee, at its seventieth session (..... 1998), approved the guidelines for the on-board use and application of computers given at annex.

2 The advent of inexpensive personal computers has resulted in rapidly-growing usage aboard merchant marine vessels for many shipboard applications, including cargo loading and trim and stability calculations. To the extent that these programmes rely upon human input of data and interpretation of output, they are potentially vulnerable to human factor errors. Although such errors will most likely emerge in the user such as shipboard officers, the actual roots of the errors might be found in other shoreside sectors; software developers who might not anticipate human factor needs, or shipping company management.

3 Requirements to Performance of such software will depend on the person/organization involved as follows:

.1 *For users (ship officers)*: greater consistency among programmes from different Vendors, which will make familiarization and proficiency easier and faster to achieve;

.2 *For ship owners/operators*: availability of well-conceived software products that include appropriate materials for training and also documentation for revising programme or data when necessary for instance to reflect any changes in the ship's weight and moment characteristics;

.3 *For software developers*: the benefit of a broader experience base than just their own corporate experience, and a consistent uniform standard reflecting customer expectations; and

.4 *For Administrations*: assurance that sophisticated programmes are developed and introduced into service, they will reflect human factor considerations and minimize chances for human error.

4 These Guidelines for the on-board use and application of computers have been developed to provide an international standard for the design, approval and testing of such systems and should be construed as supplementary to the relevant regulations of the SOLAS Convention. However, it should be noted that certain applications of computers are defined in Performance Standards adopted by the Organization which take precedence over these Guidelines.

5 Taking into account that the number and types of computer-based systems available for on-board use is strongly increasing, that such systems are under fast development and the fact that they have considerable effect on the safety at sea, the international harmonization should be beneficial to manufacturers, ship builders, ship owners and ship operators, maritime administrations and organizations acting on their behalf, seafarers, safety of passengers and other users of marine services.

6 The Guidelines are not intended to prohibit the use of any existing computer-based systems on board existing ships if such systems do not fully comply with these Guidelines. Many existing ships have operated their computer-based systems successfully and safely for a long period of time, and their operating history should be considered in evaluating their suitability to continue contributing to the safe operation.

7 For existing systems, the Guidelines should be made applicable to a reasonable extent when major modifications are carried out.

8 Where these Guidelines refer to the Administration, this is the flag State Administration or a recognized organization authorized to act on its behalf. A recognized organization is an organization authorized in compliance with requirements to organizations to act on behalf of Administration issued by IMO.

9 Member Governments, CIRM, IEC, IACS, ICS are requested to bring those guidelines to the attention of all concerned.

ANNEX

DRAFT GUIDELINES FOR THE ON-BOARD USE AND APPLICATION OF COMPUTERS

1 Scope

1.1 These guidelines are applicable where computer-based systems are used to perform essential functions, such as:

a)
- propulsion, steering and manoeuvring
- navigation and communication
- cargo loading, discharging and control
- safety of passengers and crew (e.g. fire safety systems and general alarm); and

b) essential calculations, such as ship's stability and loading.

1.2 The guidelines are not applicable to equipment or systems for which relevant specific Performance Standards of the Organization exist.

1.3 These guidelines should also be applied to non-essential functions where loss of control could result in serious damage to the ship or its machinery, or serious injury to personnel, e.g. explosion of domestic water boilers.

2 Definitions

In addition to the definitions in the SOLAS Convention the following are necessary for these guidelines:

2.1 Computer

A programmable electronic device for storing and processing data, making calculations, or performing control.

Notes:

1. For the purposes of this document the term "computer" means a "digital computer".

2. A computer may consist of a stand-alone unit or may consist of several interconnected units and includes any programmable electronic system (PES), including main-frame, mini-computer or micro-computer.

2.2 Computer-based system

A system of one or more computers, associated software, peripherals and interfaces.

2.3 Integrated system

A combination of computer-based systems which are interconnected in order to allow centralised access to sensor information and/or command/control.

Notes:

Integrated systems may, for example, perform one or more of the following operations:

- passage execution (e.g. steering, speed control, traffic surveillance, voyage planning);
- communications (e.g. radiotelephone, radiotelex, GMDSS);
- machinery (e.g. power management, machinery monitoring, fuel oil/lubrication oil transfer);
- cargo (e.g. cargo monitoring, inert gas generation, loading/discharging);
- safety and security (e.g. fire detection, fire pump control, watertight doors).

2.4 Interface

A transfer point at which information is exchanged.

Note:

Examples of Interfaces include:

- Input/output interface (used for interconnection with sensors and actuators);
- Man/machine interface (e.g. visual display units, keyboards, tracker-balls, and dedicated controls and instruments used for communication between the operator and the computer);
- Communications interface (used to enable serial communications/networking with other computers or peripherals).

2.5 Node

A point of interconnection to a data communication link.

2.6 Peripheral

A device performing an auxiliary action in the system, e.g. printer, data storage device.

2.7 Software

Programs, data and documentation associated with the operation of a computer-based system.

3 General Requirements

3.1 General

3.1.1 Computer-based systems should fulfill the functional requirements of the system under control for all operating conditions including emergency conditions, taking into account:

- Danger to persons
- Environmental impact
- Damage to equipment
- Usability
- Operability of non-computer devices and systems, etc.

3.1.2 If process times for functions of the system are shorter than the reaction times of the operator and therefore damage cannot be prevented by manual intervention, means of automatic intervention should be provided.

3.1.3 A computer-based system should have sufficient capability to:

- perform necessary autonomous operations,
- accept user commands,
- inform the user correctly,

under all operating conditions including emergency.

3.1.4 System capability should provide adequate response times for all functions, taking into consideration the maximum load and maximum number of simultaneous tasks, including network communication speed, under normal and abnormal process conditions.

3.1.5 Computer-based systems should be designed in such a way that they can be used without special previous knowledge, otherwise appropriate assistance should be provided for the user, as under 6. Training.

3.1.6 Computer-based systems should be protected against unintentional or unauthorized modification of programs and data.

3.2 Hardware

3.2.1 Hardware should be suitably designed to withstand supply voltage variations and transients, ambient temperature changes, vibration, humidity, electromagnetic interference and corrosion normally encountered in ships.

3.2.2 The design of the hardware should ensure ease of access to interchangeable parts for repairs and maintenance.

3.2.3 Each replaceable part should be simple to replace and should be constructed for easy and safe handling. All replaceable parts should be so arranged that it is not possible to connect them incorrectly or to use incorrect replacements. Where this is not practicable, the replaceable parts, including their means of electrical connection, should be clearly marked.

3.3 Software

3.3.1 Systematic procedures should be followed during all phases of the software life cycle (development, installation and subsequent modification).

3.3.2 System tests should be specified, performed and documented. These tests should include all software functions and important combinations of functions, performance, dependability and usability requirements under all modes of operation including emergency conditions and behaviour under failure conditions.

3.3.3 Modifications of program contents and data, as well as a change of version, should be documented.

Note: ISO 9000-3 Gives guidelines for the application of ISO 9001 to the development, supply and maintenance of software.

4 System Configuration

4.1 General

4.1.1 The hardware and software should be of a modular, hierarchical, design in order to maximise the fault tolerance of the system.

4.1.2 The selection of the computer equipment should be consistent with safe operation of the system under control.

4.2 Self-test

4.2.1 Computer-based systems should be monitored for correct operation and an alarm should be given for an abnormal condition.

4.3 Power supply

4.3.1 The power supply should be monitored for failure and should give an alarm in the event of an abnormal condition.

4.3.2 Program and data held in the system should be protected from corruption by loss of power.

4.3.3 Redundant systems should be selectively fed and separately protected against short circuits and overloads.

4.4 Installation

4.4.1 Equipment and its associated cabling should be installed in accordance with an appropriate code of practice to minimize electromagnetic interference between the equipment concerned and other equipment on board.

4.5 Cables

4.5.1 Cables used for data communication should be of adequate mechanical strength, should be suitably supported and also protected from mechanical damage.

4.6 Data communication

4.6.1 The data communication link should be continuously self-checking, for detecting failures on the link itself and data communication failure on nodes and should give an alarm in the event of an abnormal condition.

4.6.2 When the same data communication link is used for two or more essential functions, this link should be redundant. Redundant data communication links should be routed with as much separation as practical.

4.6.3 Switching between redundant links should not disturb data communication or continuous operation of functions.

4.6.4 To ensure that data can be exchanged between various systems, standardized interfaces should be used.

4.7 Failure to safety

4.7.1 In the event of a failure of a computer-based system, that system should automatically revert to the least hazardous condition.

4.7.2 The failure and restarting of computer-based systems should not cause processes to enter undefined or critical states.

4.7.3 Control, alarm and safety functions should be arranged such that a single failure will not affect more than one of these functions.

4.8 Integration of Systems

4.8.1 Operation with an integrated system should be at least as effective as it would be with individual, stand-alone equipment. Where multifunction displays and controls are used they should be duplicated and interchangeable.

4.8.2 Failure of one part (individual module, equipment or subsystem) of the integrated system should not affect the functionality of other parts, except for those functions directly dependent upon information from the defective part.

4.8.3 A complete failure in connectivity between parts should not affect their independent functionality.

4.8.4 An alternative means of operation, independent of the integration, should be available for all essential functions.

4.8.5 When systems under control are required to be duplicated and in separate compartments this should also be applied to computer-based systems.

5 User Interface

5.1 General

5.1.1 Computer-based systems should be designed for ease of handling and user-friendliness and should follow ergonomic principles.

5.1.2 The operational status of a computer-based system should be easily recognizable.

5.1.3 A user guide should be provided. This user guide should describe for example:

- function keys
- menu displays
- computer-guided dialogue steps, etc.

5.1.4 An alarm should be displayed at relevant operator stations for failure or shutdown of a subsystem.

5.2 Input devices

5.2.1 Input devices should have clearly definable functions, be reliable in use and operate safely under all conditions. The acknowledgement of the instruction given should be recognizable.

5.2.2 Dedicated function keys should be provided for frequently recurring commands and for commands which must be available for rapid execution. If multiple functions are assigned to keys, it should be possible to recognize which of the assigned functions is active.

5.2.3 Control panels on the bridge should be provided with separate lighting. The level of lighting and the brightness of visual display units should be controllable.

5.2.4 Where equipment operations or functions may be changed via keyboards appropriate measures should be employed so as to limit access of such operations to authorized personnel only.

5.2.5 If the operation of a key is able to cause dangerous operating conditions, measures should be taken to prevent the instruction in question from being executed by a single action such as:

- use of a special key lock,
- use of two or more keys.

5.2.6 Conflicting control interventions should be prevented by means of interlocks or warnings. The active control status should be recognizable.

5.2.7 The operation of input devices should be logical and correspond to the direction of action of the controlled equipment.

5.3 Output devices

5.3.1 The size, colour and density of text and graphic information displayed on a visual display unit should be such that it may be easily read from the normal operator position under all operational lighting conditions. The brightness and contrast should be capable of being adjusted to the prevailing ambient conditions.

5.3.2 Information should be displayed in a logical priority.

5.3.3 If alarm messages are displayed on colour monitors, the distinctions in the alarm status should be ensured even in the event of failure of a primary colour.

5.4 Graphical user interface

5.4.1 Information should be presented clearly and intelligibly according to its functional significance and association. Screen contents should be logically structured and their representation should be restricted to the data which is directly relevant for the user.

5.4.2 When using general purpose graphical user interfaces, only the functions necessary for the respective process should be available.

5.4.3 Alarms should be visually and audibly presented with priority over other information in every operating mode of the system; they should be clearly distinguishable from other information.

5.4.4 All display and control functions in control stations operated by the same operators should adopt a consistent user interface. Particular attention should be paid to:

- symbols;
- colours;
- controls;
- information priorities;
- layout.

6 Training

6.1 Training should be provided at a level required to effectively operate and maintain the system and should cover normal, abnormal and emergency conditions. The user interface for training should correspond with the real system.

6.2 Documentation should be provided to support the training and should be available for repeated use on board.

6.3 Where a training mode is incorporated in a computer-based system it should be clearly indicated when the training mode is active.

6.4 Whilst in the training mode the operation of the system should not be impaired neither should any system alarms or indications be inhibited.

7 Testing

7.1 Evidence should be furnished to the satisfaction of the Administration that the installed computer-based systems have been designed, manufactured and tested in accordance with these guidelines.* In case of any integrated systems such evidence should be furnished by a single party responsible for the integration.

7.2 In addition to these guidelines manufacturers should ensure by means of a quality control system that their products meet with their specifications.

7.3 Tests and inspections should be carried out with the aim of establishing the correct operation and the quality of a product (see also 3.3.2).

7.4 Modifications of program contents and data, as well as a change of version, should be tested (see also 3.3.3).

***

*Reference is also made to the following International Electrotechnical Commission (IEC) Publications:
92 - *Electrical Installation in Ships.*
533 - *Electromagnetic compatibility of electrical and electronic installation in ships.*
945 - *Marine navigational equipment - General requirements - Methods of testing and required results.*

ANNEX 22

DRAFT MSC CIRCULAR

ALERTING OF SEARCH AND RESCUE AUTHORITIES

1 The Maritime Safety Committee, at its sixty-ninth session (11 to 20 May 1998), approved operating guidelines for masters of ships in distress and urgency situations, given in the annex, for use in training ship masters, mates and key shore-based personnel in SAR procedures which will ensure early notification of SAR authorities when they became involved in emergency at sea.

2 Member Governments are invited to make the information available to ship masters, mates and key shore-base personnel who may be involved in an emergency at sea.

ANNEX

Alerting the Search and Rescue Authorities

1 The need for the earliest possible alerting of the search and rescue (SAR) co-ordination authority to maritime emergencies cannot be over-emphasised.

2 It is essential to enable shore-based facilities to respond without delay to any situation which constitutes, or has the potential to constitute, a danger to life. Time lost in the initial stages of an incident may be crucial to its eventual outcome. It cannot be regained.

3 Factors to be considered include position (in relation to hazards and to shore-based or other SAR units); time of day; weather conditions (actual & forecast); the number of persons at risk or potentially at risk; specific assistance required, etc.

4 It is always best to consider the 'worst-case scenario' and to alert the SAR organisation accordingly. Depending on the circumstances, the co-ordinating authority may choose to alert or despatch SAR facilities as a precautionary measure and/or to reduce transit times. If assistance is not subsequently required, any such positive response can be easily curtailed. But time lost through delays in notification can *never* be regained.

5 It is therefore essential that the SAR co-ordinating authority be informed *immediately* of:

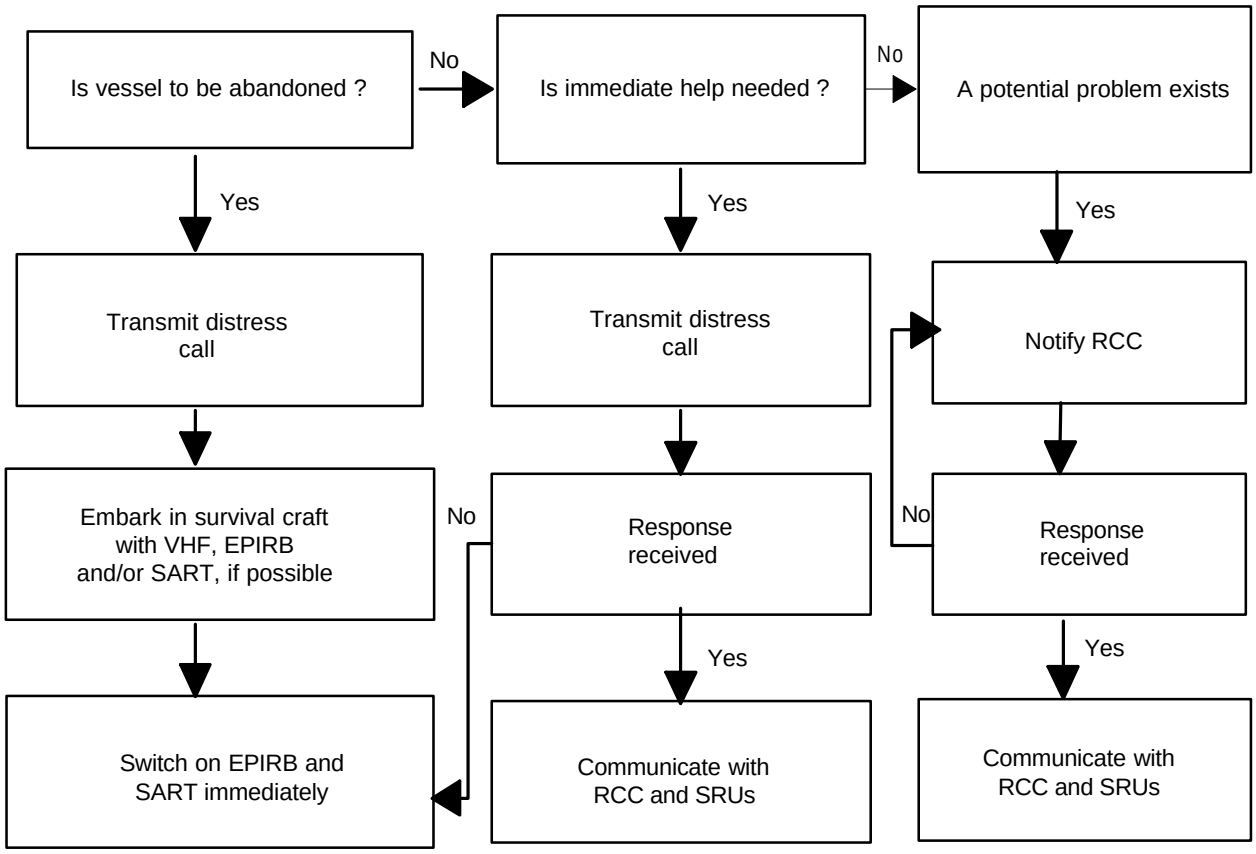
.1 all maritime SAR incidents;

.2 any situation which may develop into a SAR incident; and

.3 any incident which may involve or lead to danger to life, the environment or to property which may require action from the SAR services and/or other authorities.

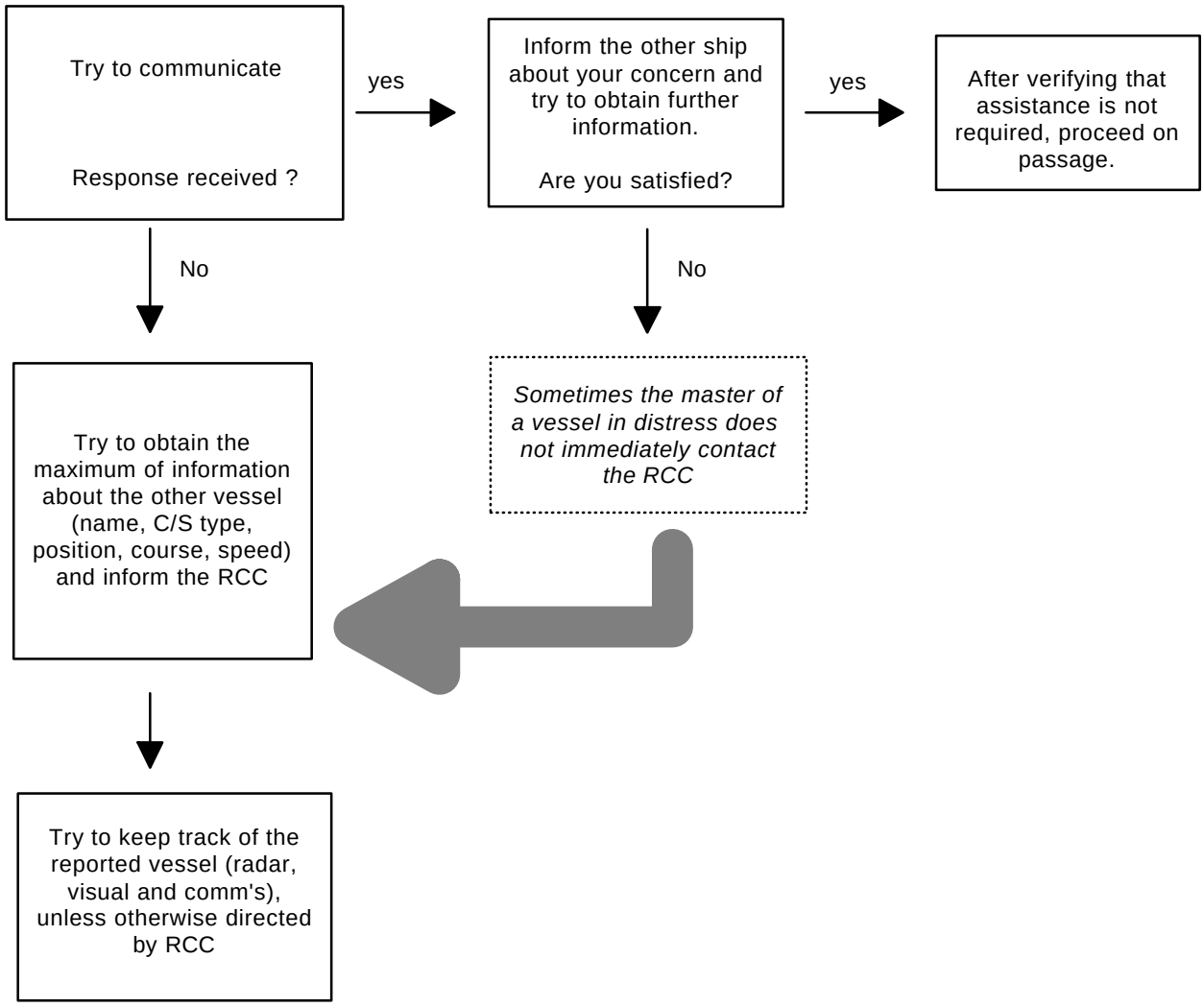
Operating guidance for masters of ships in distress or urgency situations

6 The following diagram shows standard procedures for distress/urgency message routeing. It is for guidance only, and does not preclude the use of any and all available means of distress alerting.



Operating guidance for masters of ships observing another vessel apparently in danger

7 The following diagram shows suggested procedures for reporting concerns about the safety of another vessel (fire, smoke, adrift, navigating towards a danger, etc.).



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ANNEX 23

DRAFT ASSEMBLY RESOLUTION

PILOT TRANSFER ARRANGEMENTS

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

~~RECALLING FURTHER resolution A.667 Recommendation on Pilot Transfer Arrangements Performance Standards for Mechanical Pilot Hoists and resolution A.426 (XI), Arrangements for Embarking and Disembarking Pilots in Very Large Ships~~,

RECALLING FURTHER ~~ALSO~~ the provisions of regulation V/17 of the International Convention for the Safety of Life at Sea, 1974, as amended,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its [....] session,

1. ADOPTS the Recommendation on Pilot Transfer Arrangements set out in the Annex to the present resolution;

2. INVITES Member Governments to draw the attention of all concerned to this Recommendation;

3. FURTHER INVITES Member Governments to ensure that pilot ladders, mechanical pilot hoists and their arrangements, use and maintenance conform to standards not inferior to those set out in the Annex to the present resolution.

4. REVOKES resolution A.257(VIII), resolution A.426(XI) and resolution A.667(16).

Note: Strike outs indicate text deleted from former resolution A.667(16) followed by a marker indicating its whereabouts. Renumbering and, in one case (paragraph 4.7.6) imported text have been underlined.

ANNEX

1 General

Ship designers are encouraged to consider all aspects of pilot transfer arrangements at an early stage in design. Equipment designers and manufacturers are similarly encouraged, particularly with respect to the provisions of paragraphs 2.1.1.3, 3.1 and 3.3.

2 Pilot ladders

2.1 Position and construction

~~2.1.1 Every pilot ladder should be so positioned and secured that:~~

~~.1 it is clear of any possible discharges from the ship;~~

~~.2 it is within the parallel body length of the ship and, as far as is practicable, within the midship half-length of the ship; and~~

~~.3 each step rests firmly against the ship's side. Where constructional features, such as rubbing bands, would prevent the implementation of this provision, special arrangements should, to the satisfaction of the Administration, be made to ensure that persons are able to embark and disembark safely~~.
(SOLAS V/17(c)(iii)(1)(aa)(bb)(cc))

~~2.1.2 Shipside doors used for pilot transfer should not open outwards~~. **(SOLAS V/17(e))**

~~2.1.3 A single length of pilot ladder should be used capable or reaching the water from the point of access to, or egress from, the ship and due allowance should be made for all conditions of loading and trim of the ship, and for an adverse list of 15°.~~
(SOLAS V/17(c)(iii)(1)(dd))

2.1.1 The securing strongpoints, shackles and securing ropes should be at least as strong as the side ropes specified in subsection 2.2 below.

2.1.2 ~~2.1.4~~ The steps of the pilot ladders should comply with the following requirements:

.1 if made of hardwood, they should be made in one piece, free of knots;

.2 if made of material other than hardwood, they should be of equivalent strength, stiffness and durability to the satisfaction of the Administration;

.3 the four lowest steps may be of rubber of sufficient strength and stiffness or other material to the satisfaction of the Administration;

.4 they should have an efficient non-slip surface;

Note: Strike outs indicate text deleted from former resolution A.667(16) followed by a marker indicating its whereabouts. Renumbering and, in one case (paragraph 4.7.6) imported text have been underlined.

.5 they should be not less than 400 mm between the side ropes, 115 mm wide and 25 mm in depth, excluding and non-slip device or grooving;

.6 they should be equally spaced not less than 300 mm or more than 380 mm apart; and

.7 they should be secured in such a manner that each will remain horizontal.

2.1.3 ~~2.1.5~~ No pilot ladder should have more than two replacement steps which are secured in position by a method different from that used in the original construction of the ladder, and any steps so secured shall be replaced as soon as reasonably practicable by steps secured in position by the method used in the original construction of the pilot ladder. When any replacement step is secured to the side ropes of the pilot ladder by means of grooves in the sides of the step, such grooves should be in the longer sides of the step.

2.1.4 ~~2.1.6~~ Pilot ladders with more than five steps should have spreader steps not less than 1.80 m long provided at such intervals as will prevent the pilot ladder from twisting. The lowest spreader step should be the fifth step from the bottom of the ladder and the interval between any spreader step and the next should not exceed nine steps.

2.2 Ropes

2.2.1 The side ropes of the pilot ladder should consist of two uncovered ropes not less than 18 mm in diameter on each side and be continuous with no joins below the top step.

2.2.2 Side ropes should be made of manila or other material of equivalent strength, durability and grip which has been protected against actinic degradation and is satisfactory to the Administration.

~~2.2.3 Two man-ropes of not less than 28 mm in diameter properly secured to the ship should be kept at hand ready for use if required.~~ **(SOLAS V/17(g)(i))**

~~2.3 Associated equipment~~

~~2.3.1 A lifebuoy equipped with a self-igniting light should be kept at hand ready for use.~~
(SOLAS V/17(g)(ii))

~~2.3.2 A heaving line should be kept at hand ready for use.~~ **(SOLAS V/17(g)(ii))**

~~2.3.3 When required by section 5, stanchions and bulwark ladders should be provided.~~ **(SOLAS V/17(g)(iii))**

~~2.3.4 Lighting should be provided such that both the pilot overside and the position where any person embarks or disembarks on the ship are adequately lit.~~ **(SOLAS V/17(h))**

3 Accommodation ladders used in conjunction with pilot ladders

~~3.1 The accommodation ladder should be sited leading aft. When in use, the lower end of the ladder should rest firmly the ship's side within the parallel body length of the ship and within the midship half-length and clear of all discharges~~. **(SOLAS V/17(c)(iii)(2))**

Note: Strike outs indicate text deleted from former resolution A.667(16) followed by a marker indicating its whereabouts. Renumbering and, in one case (paragraph 4.7.6) imported text have been underlined.

3.1 Equally safe arrangements which might be more suitable for special types of ships may be accepted.

3.2 The length of the accommodation ladder should be sufficient to ensure that its angle of slope does not exceed 55°.

3.3 The lower platform of the accommodation ladder should be in a horizontal position when in use.

3.4 Intermediate platforms, if fitted, should be self-levelling. Treads and steps of the accommodation ladder should be so designed that an adequate and safe foothold is given at the operative angles.

3.5 The ladder and platform should be equipped on both sides with stanchions and rigid handrails, but if handropes are used they should be tight and properly secured. The vertical space between the handrail or handrope and the stringers of the ladder should be securely fenced.

3.6 The pilot ladder should be rigged immediately adjacent to the lower platform of the accommodation ladder and the upper end should extend at least 2 m above the lower platform.

~~3.7 Lighting should be provided at night such that the full length of the ladder is adequately lit.~~
(SOLAS V/17(h))

3.7 ~~3.8~~ If a trapdoor is fitted in the lower platform to allow access from and to the pilot ladder, the aperture should not be less than 750 mm x 750 mm. In this case the after part of the lower platform should also be fenced as specified in paragraph 3.5 above, and the pilot ladder should extend above the lower platform to the height of the handrail.

3.8 ~~3.9~~ Accommodation ladders, together with any suspension arrangements or attachments fitted and intended for use in accordance with this recommendation, should be to the satisfaction of the Administration.

4 Mechanical pilot hoists

4.1 ~~Approval,~~ Location and maintenance

~~4.1.1 The mechanical pilot hoist and its ancillary equipment should be of a type approved by the Administration. *[The pilot hoist should be designed to operate]* as a moving ladder to lift and lower one person on the side of the ship~~, *[or as a platform to lift and lower one or more persons on the side of the ship.]*
(SOLAS V/17(f))

~~4.1.2 The hoist should be so located that it is within the parallel body length of the ship and, as far as is practicable, within the midship half-length of the ship and clear of all discharges.~~ **(SOLAS V/17(c)(iii)(3))**

4.1.1 ~~4.1.3~~ From a standing position at the control point, it should be possible for the operator to have the hoist under observation continuously between its highest and lowest working positions.

Note: Strike outs indicate text deleted from former resolution A.667(16) followed by a marker indicating its whereabouts. Renumbering and, in one case (paragraph 4.7.6) imported text have been underlined.

4.1.2 ~~4.1.4~~ There should be on board a copy of the manufacturer's maintenance manual, approved by the Administration, which contains a maintenance log book. The hoist should be kept in good order and maintained in accordance with the instructions of the manual.

4.1.3 ~~4.1.5~~ A record of maintenance and repairs of the hoist should be entered in the maintenance log book by the officer responsible for its maintenance.

4.2 Construction of hoist

4.2.1 The working load of a hoist should be the sum of the weight of the hoist ladder or lift platform and falls in the fully lowered condition and the maximum number of persons which the hoist is designed to carry, the weight of each person being taken as 150 kg. The maximum complement a hoist is permitted to carry should be clearly and permanently marked on the hoist.

4.2.2 Every hoist should be of such construction that, when operating under the working load determined in accordance with paragraph 4.2.1, each component has an adequate factor of safety having regard to the material used, the method of construction and the nature of its duty:

.1 the average lifting and lowering speeds should be between 15 m/min and 21 m/min when the pilot hoist is carrying its full working load;

.2 the pilot hoist should be capable of lifting, lowering, and stopping when carrying 2.2 times its working load.

4.2.3 In selecting the materials of construction, regard should be paid to the conditions under which the hoist will be required to operate.

~~4.2.4 There should be safe means of access between the ladder at its upper limit and the deck, and vice versa; such access should be gained directly by a platform securely guarded by handrails.~~ **(SOLAS V/17(f)(i))**

4.2.4 ~~4.2.5~~ Any electrical appliance associated with the ladder section of the hoist should not be operated at a voltage exceeding 25 V.

4.2.5 ~~4.2.6~~ The hoist should consist of the following main parts:

.1 a mechanically powered winch;

.2 two separate falls;

.3 a ladder or platform consisting of two parts;

.3.1 a rigid upper part for the transportation of any person upwards or downwards;

.3.2 a flexible lower part, consisting of a short length of pilot ladder, which enables any person to climb from the pilot launch or tender to the rigid upper part of the ladder and vice versa.

Note: Strike outs indicate text deleted from former resolution A.667(16) followed by a marker indicating its whereabouts. Renumbering and, in one case (paragraph 4.7.6) imported text have been underlined.

4.3 Mechanically powered winch

4.3.1 The source of power for the winches should be electrical, hydraulic or pneumatic. In the case of a pneumatic system, an exclusive air supply should be provided with adequate arrangements to control its quality. In the case of ships engaged in the carriage of flammable cargoes, the source of power should not be such as to cause a hazard to the ship. All systems should be capable of efficient operation under the conditions of vibration, humidity and range of temperature likely to be experienced in the ship in which they are installed.

4.3.2 The winch should include a brake or other equally effective arrangement (such as a properly constructed worm drive) which is capable of supporting the working load in the event of power failure. The brake or other arrangement should be capable of supporting the working load when the hand gear is in use.

~~4.3.3 Efficient hand gear should be provided to lower or recover, at a reasonable speed, the person or persons carried in the event of power failure.~~
(SOLAS V/17(f)(ii))

4.3.3 ~~4.3.4~~ Any crank handle provided for manual operation should, when engaged, be so arranged that the power supply is automatically cut off.

4.3.4 ~~4.3.5~~ Efficient arrangements should be provided to ensure that the falls wind evenly on to the winch-drums.

4.4 Controls

4.4.1 Hoists should be fitted with automatic safety devices in order to cut off the power supply when the ladder comes against any stop so as to avoid overstressing the falls or any other part of the hoist: provided that in the case of hoists operated by pneumatic power, the safety cut-out device may be omitted if the maximum torque available from the air motor cannot result in overstressing of the falls or other parts of the hoist.

4.4.2 All hoist controls should incorporate an emergency stop to cut off the power supply and, in addition, an emergency stop switch within easy reach of the person or persons carried.

4.4.3 The hoist controls should be clearly and durably marked to indicate "lift", "stop" and "lower". The manner in which these controls operate should correspond to the manner in which the hoist operates and should automatically return to the "stop" position when released.

4.4.4 ~~The hoist should be securely attached to the structure of the ship. Attachment should not be solely by means of the ship's side rails. Proper and strong attachment points should be provided for hoists of the portable type on each side of the ship.~~
(SOLAS V/17(f)(iii))
A portable hoist should be equipped with an interlock that prevents operation of the hoist when the hoist is not correctly installed.

Note: Strike outs indicate text deleted from former resolution A.667(16) followed by a marker indicating its whereabouts. Renumbering and, in one case (paragraph 4.7.6) imported text have been underlined.

4.5 Falls

4.5.1 Two separate wire falls should be used, made of flexible steel rope of adequate strength and resistant to corrosion in a salt-laden atmosphere.

4.5.2 The falls should be securely attached to the winch-drums and the ladder. These attachments should be capable of withstanding a proof load of not less than 2.2 times the load on such attachments. The falls should be maintained at a sufficient relative distance from one another, so as to reduce the possibility of the ladder becoming twisted.

4.5.3 The falls should be of sufficient length to allow for all conditions of freeboard likely to be encountered in service and to retain at least three turns on the winch-drums with the hoist in its lowest position.

4.5.4 The falls should be so arranged that the ladder or lift platform remains level if one fall breaks.

4.5.5 A minimum safety factor of 6 should be applied to the falls. The devices for attaching the falls to the winch should be capable of supporting 2.2 times the working load with the falls run all the way out.

4.6 Ladder or platform section

4.6.1 The rigid ladder part should be not less than 2.50 m in length and be equipped in such a way that the person carried can maintain a safe position whilst being hoisted or lowered. Such part should be provided with:

.1 a sufficient number of steps to provide a safe and easy access to and from the platform referred to in paragraph 4.6.2;

.2 safe handholds capable of being used under all conditions including extremes of temperature, together with non-slip steps;

.3 a spreader at the lower end of not less than 1.80 m. The ends of the spreader should be provided with rollers which should roll freely on the ship's side during the whole operation of embarking or disembarking;

.4 an effective guard ring, suitably padded, so positioned as to provide physical support for the person carried without hampering movement;

.5 adequate means for communication between the person carried and the operator and the responsible officer who supervises the embarkation or disembarkation of the person carried.

4.6.2 A hoist designed to operate as a lift platform should have a platform:

.1 with a non-slip surface at least 750 mm by 750 mm exclusive of the surface area of any trap door in the floor;

Note: Strike outs indicate text deleted from former resolution A.667(16) followed by a marker indicating its whereabouts. Renumbering and, in one case (paragraph 4.7.6) imported text have been underlined.

.2 limited to one person per square metre of floor area or fraction thereof, exclusive of the area of any trapdoor;

.3 with a trapdoor, if provided, at least 750 mm by 750 mm, so arranged that a pilot ladder may be rigged through the trapdoor, extending above the platform to the height of the handrail;

.4 enclosed by a guard-rail at least 1 m above the surface of the platform. At least two intermediate rails should be provided between the floor and the guard-rail. The rails should be set back from the edge of the platform at least 50 mm. Each gate in the rails should have a latch that can keep the gate securely closed.

4.6.3 Below the rigid part mentioned in paragraph 4.6.1, a section of flexible ladder comprising eight steps should be provided and constructed in accordance with the requirements of section 2, except that it need not be equipped with spreader steps; however, it should have appropriate fittings at the top for securing it to the rigid ladder.

4.6.4 The side ropes of the flexible ladder section should be in accordance with section 2.2. Each rope should be continuous with no joins below the top step.

4.6.5 The steps of the flexible ladder section and those of the rigid ladder section should be in the same vertical line, of the same width, spaced vertically equidistant and placed as close as practicable to the ship's side. The handholds of both parts of the ladder section should be aligned as closely as possible.

4.6.6 If belting is fitted in way of the hoist position, such belting should be cut back sufficiently to allow the hoist to be placed as close as practicable to the ship's side.

4.7 Operation of the hoist

4.7.1 Rigging, testing and use of the hoist should be supervised by a responsible officer of the ship. Any person engaged in rigging and operating the hoist should have been instructed in the rigging and operating procedures as contained in the approved manual and the equipment should be tested prior to use.

4.7.2 Lighting should be provided so that the hoist overside, its controls and the position on the ship where the person carried embarks or disembarks is adequately lit. The equipment specified in subsection 2.3 should be kept at hand ready for use.

4.7.3 A pilot ladder complying with the provisions of section 2 should be rigged adjacent to the hoist and available for immediate use so that access to it is available from the hoist during any point of its travel. The pilot ladder should be capable of reaching the sea level from its own point of access to the ship.

4.7.4 The position on the ship's side where the hoist will be lowered should be indicated.

4.7.5 An adequate protected stowage position should be provided for the portable hoist. In very cold weather, to avoid the danger of ice formation, the portable hoist should not be rigged until use is imminent.

Note: Strike outs indicate text deleted from former resolution A.667(16) followed by a marker indicating its whereabouts. Renumbering and, in one case (paragraph 4.7.6) imported text have been underlined.

4.7.6 The assembly and operation of the pilot hoist should form part of the ship's routine drills. **(ex resolution A.275, paragraph 2.5.(f))**

4.8 Testing

4.8.1 Every new hoist should be subjected to an overload test of 2.2 times the working load. During this test the load should be lowered a distance of not less than 5 m and the brake applied to stop the hoist drum. Where a winch is not fitted with a brake, and depends upon an equally effective arrangement, as prescribed in paragraph 4.3.2, to support the load in the event of power failure, the load should be lowered at the maximum permitted lowering speed and a power failure should be simulated to show that the hoist will stop and support the load.

4.8.2 An operating test of 10 % overload should be carried out after installation on board the ship to the satisfaction of the Administration.

4.8.3 Subsequent examinations of the hoists under working conditions should be made at each annual or intermediate survey and at each renewal survey for the ship's safety equipment certificate.

5 Access to deck

Means should be provided to ensure safe, convenient and unobstructed passage for any person embarking on, or disembarking from, the ship between the head of the pilot ladder, or of any accommodation ladder or other appliance provided pursuant to paragraph 4.2.4 above and the ship's deck. Where such passage is by means of:

.1 a gateway in the rails or bulwark, adequate handholds should be provided;

.2 a bulwark ladder, such ladder should be securely attached to the ship to prevent overturning. Two handhold stanchions should be fitted at the point of embarking on or disembarking from the ship on each side which should be not less than 0.70 m or ore than 0.80 m apart. Each stanchion should be rigidly secured to the ship's structure at or near its base and also at a higher point, should be not less than 32 mm in diameter and should extend not less than 1.20 m above the top of the bulwarks. Stanchions or handrails should not be attached to the bulwark ladder.

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Note: Strike outs indicate text deleted from former resolution A.667(16) followed by a marker indicating its whereabouts. Renumbering and, in one case (paragraph 4.7.6) imported text have been underlined.

ANNEX 24

DRAFT UNITED NATIONS GENERAL ASSEMBLY RESOLUTION ON HYDROGRAPHIC SERVICES

THE GENERAL ASSEMBLY,

CONSIDERING the statements laid out in Resolution 52/26 "Oceans and law of the sea", adopted at its fifty-second session,

RECOGNIZING their interest in contributing to the principles highlighted in the text of the above mentioned Resolution, and particularly paragraphs 11(c) and (d) thereof,

DESIRING to respond to the kind invitation of cooperation made to international organizations in paragraph 12, within the framework of the International Year of the Ocean, 1998,

HAVING RECEIVED a joint submission by the International Maritime Organization and the International Hydrographic Organization concerning Hydrographic Services,

AGREES to invite Members:

.1 to arrange for the collection and compilation of hydrographic data and the publication, dissemination and keeping up to date of all nautical information necessary for safe navigation;

.2 in particular, to co-operate in carrying out, as far as possible, nautical and hydrographic services, in the manner most suitable for the purpose of assisting to safe navigation by:

.2.1 ensuring that hydrographic surveying is carried out, as far as possible, adequate to the requirements of safe navigation;

.2.2 preparing and issuing official nautical charts, sailing directions, lists of lights, tide table and other official nautical publications, where applicable, satisfying the needs of safe navigation;

.2.3 promulgating notices to mariners in order to keep official nautical charts and publications, as far as possible, up to date; and

.2.4 providing data management arrangements to support nautical and hydrographic services.

.3 to ensure the greatest possible uniformity in charts and nautical publications and take into account, whenever possible, the relevant international resolutions and recommendations;

.4 to co-ordinate their activities to the greatest possible degree in order to ensure that hydrographic and nautical information is made available on a world-wide scale as timely, reliably and unambiguously as possible.

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ANNEX 25

REVISED WORK PROGRAMME OF THE SUB-COMMITTEE

SUB-COMMITTEE ON SAFETY ON NAVIGATION (NAV)

		Target completion date/number of sessions needed for completion	Reference
1	**Routeing of ships, ship reporting and related matters**	Continuous	MSC 69/22, paragraphs 5.2 to 5.62 and 20.41 to 20.42; NAV 44/14, section 3
2	**ITU matters, including Radiocommunication ITU-R Study Group 8 matters**	Continuous	MSC 69/22, paragraphs 5.69 to 5.70 NAV 44/14, paragraphs 8.1 to 8.5
H.1	**Revision of SOLAS chapter V**	1999	MSC 69/22, paragraphs 5.71 to 5.73 NAV 44/14, paragraphs 5.1 to 5.38
H.2	**Ergonomic criteria for bridge equipment and layout**	1999	NAV 43/15, paragraphs 6.1 to 6.3; MSC 69/22, paragraphs 20.48, 21.32 and 21.39
H.3	IMO standard marine communication phrases (in co-operation with COMSAR and STW)	1 session*	MSC 68/23, paragraphs 2.3 to 2.5
H.4	**Development of measures complementary to the INF Code**	1998	MSC 69/22, paragraphs 15.1 to 15.7; NAV 44/14, paragraphs 6.1 to 6.11
H.4	**World-wide radio navigation system**	2001	MSC 69/22, paragraphs 5.65 and 20.43 NAV 44/14, paragraphs 7.1 to 7.12

* The item is scheduled to be finalized in 2000.
Grey = delete.

Sub-Committee on Safety on Navigation (NAV) (continued)

		Target completion date/number of sessions needed for completion	Reference
H.5	Revision of the HSC Code (co-ordinated by DE)	1999	MSC 68/23, paragraph 9.14 NAV 44/14, paragraphs 10.1 to 10.4
H.5	**Performance standards for night vision equipment for high-speed craft**	1999	MSC 68/23, paragraph 20.46; NAV 44/14, paragraphs 7.34 to 7.35
H.6	**Amendments to the COLREGs**	2000	NAV 44/14, paragraphs 4.1 to 4.10 MSC 69/22, paragraph 20.46
H.7	**Training and certification of maritime pilots and revision of resolution A.485(XII)(co-ordinated by STW)**	1999	MSC 69/22, paragraph 20.47 NAV 44/14 paragraphs 13.7 to 13.9
H.8	**Review of performance standards for shipborne satellite radionavigational receivers**	2000	NAV 44/14, paragraph 7.12
L.1	**Electronic chart display and information systems**	1998	NAV 44/14, paragraphs 7.13 to 7.25
L.1	Performance standards for navigation systems and equipment		NAV 44/14, paragraphs 7.26 to 7.35
	.1 **development of new performance standards for electromagnetic compasses**	1998	NAV 44/14, paragraph 7.29 to 7.31; MSC 69/22, paragraph 20.40
	.2 **new performance standards for INS**	1998	NAV 44/14, paragraphs 7.26 to 7.27
	.1 **performance standards for daylight signalling lamps**	1999	MSC 67/22, paragraph 19.25 NAV 44/14, paragraphs 7.34 to 7.35

Sub-Committee on Safety on Navigation (NAV) (continued)

		Target completion date/number of sessions needed for completion	Reference
	.4 **performance standards for sound-reception systems**	1998	NAV 44/14, paragraph 7.28; MSC 69/22, paragraph 20.39
L.2	**Operational aspects of wing-in-ground (WIG) craft** (co-ordinated by DE)	1999	NAV 44/14, paragraphs 9.1 to 9.4
L.2	**Safety of passenger submersible craft (co-ordinated by DE)**	1999	NAV 44/14, paragraphs 13.5 to 13.6
L.3	Development of a code on polar navigation (co-ordinated by DE)	2000	MSC 69/22, paragraph 20.51 NAV 44/14, paragraphs 13.14 to 13.17
L.4	IBS operational aspects	2 sessions	NAV 44/14, paragraph 7.26
L.5	Use and application of on-board computers (co-ordinated by DE)	1 session	NAV 44/14, paragraphs 13.1 to 13.2
L.5	User requirements for heading systems	1 session	NAV 44/14, paragraph 7.31
L.6	Comprehensive review of chapter 13 of the HSC Code	2 sessions	NAV 44/14, paragraph 10.4

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ANNEX 26

PROVISIONAL AGENDA FOR NAV 45

Sub-Committee on Safety of Navigation (NAV) - 45th session

Opening of the session

1 Adoption of the agenda

2 Decisions of other IMO bodies

3 Routeing of ships, ship reporting and related matters (including voyage planning)

4 Amendments to the COLREGs

5 Revision of SOLAS chapter V

6 Ergonomic criteria for bridge equipment and layout

7 Navigational aids and related matters

.1 world-wide radio navigation system

.2 review of performance standards for shipborne satellite radionavigational receivers

.3 performance standards for night vision equipment for high-speed craft

.4 performance standards for daylight signalling lamps

8 ITU matters, including Radiocommunication ITU-R Study Group 8 matters

9 Training and certification of maritime pilots and revision of resolution A.485(XII)

10 Safety of passenger submersible craft

11 Work programme and agenda for NAV 46

12 Election of Chairman and Vice-Chairman for 2000

13 Any other business

14 Report to the Maritime Safety Committee

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